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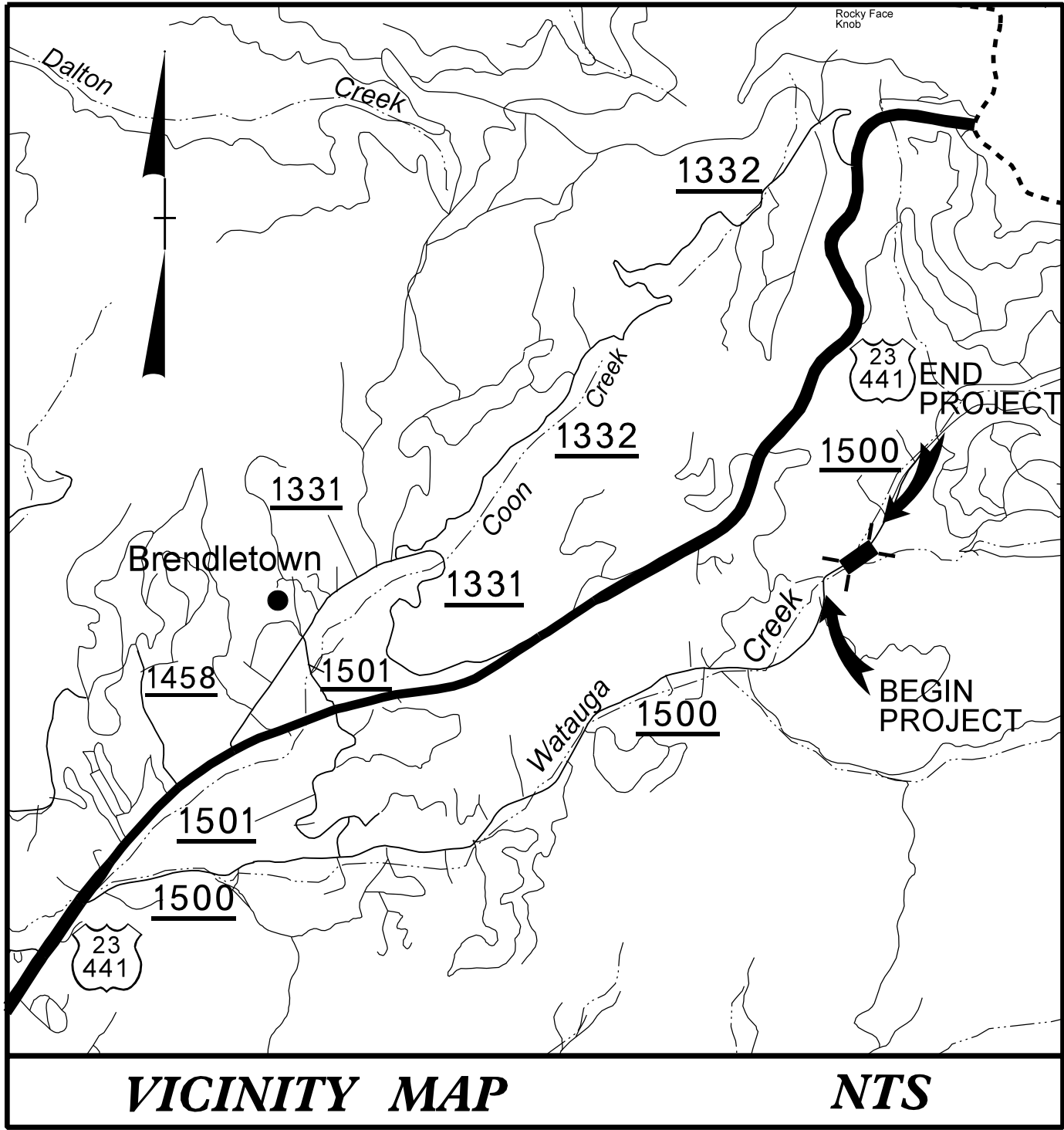
1/25/2018 2:59:00 PM
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G:\CADD\Plot\CKE21004\CKE21004-rdu.tbl

09/08/19

TIP PROJECT: 17BP.14.R.48

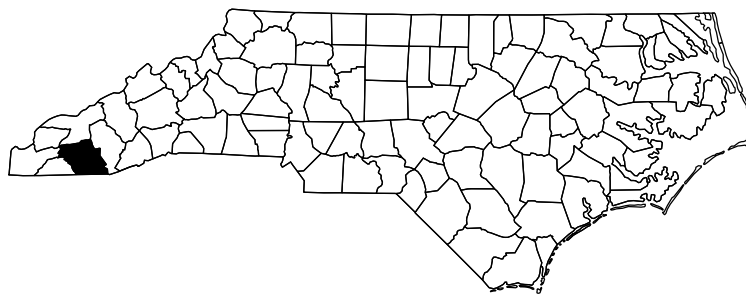
CONTRACT: DN00273

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

NTS



NCDOT CONTACT:
JOSH DEYTON, PE
HIGHWAY DIVISION 14
BRIDGE MANAGER

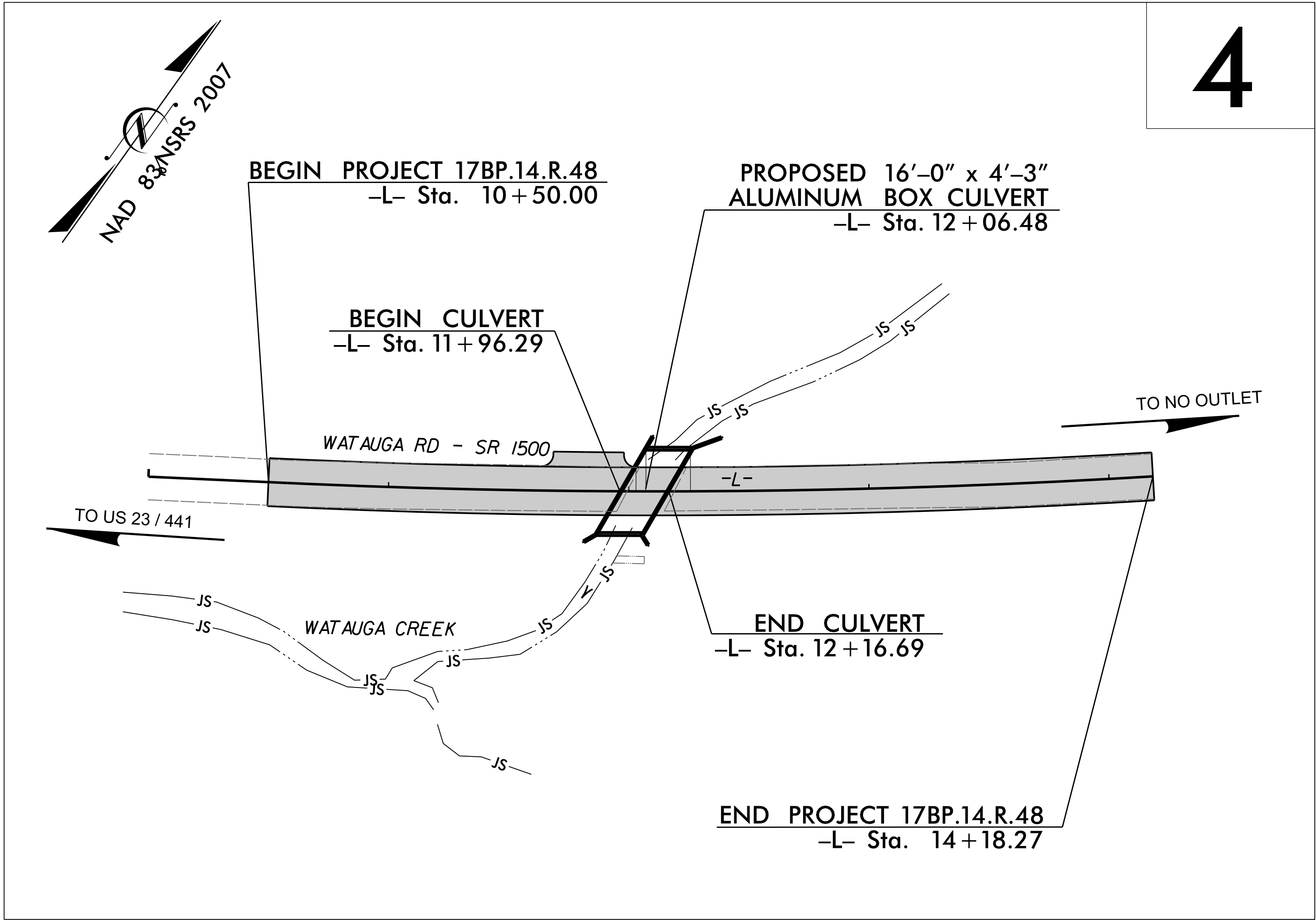
90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MACON COUNTY

LOCATION: BRIDGE NO. 308 ON SR 1500 (WATAUGA RD) OVER WATAUGA CREEK

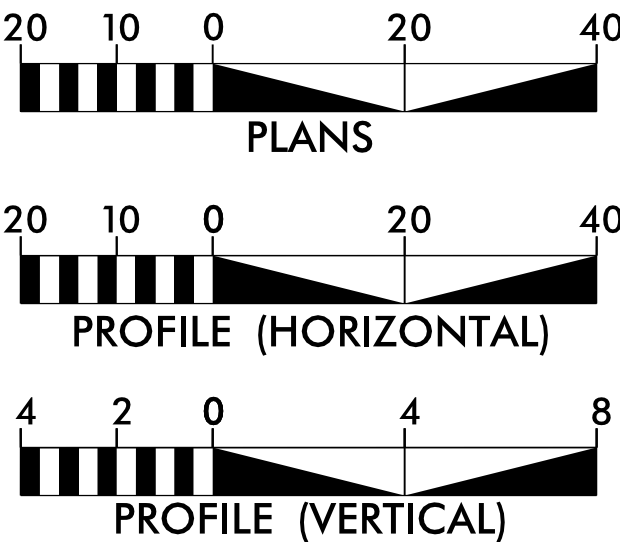
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CULVERT



4

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2010 = 800
ADT =
DHV = %
D = %
T = 6 % *
V = 40 MPH
* TTST = DUAL
FUNC CLASS =
LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT = 0.066 MILES
LENGTH STRUCTURES PROJECT = 0.004 MILES
TOTAL LENGTH PROJECT = 0.070 MILES



Prepared In the Office of:
LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

2018 STANDARD SPECIFICATIONS

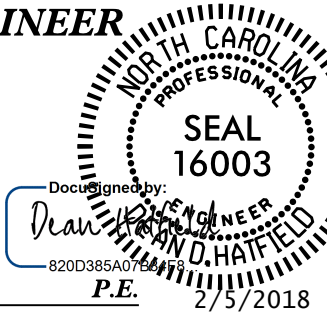
RIGHT OF WAY DATE:
OCT. 8, 2015

LETTING DATE:
FEB. 27, 2018

DEAN D. HATFIELD, PE
PROJECT ENGINEER

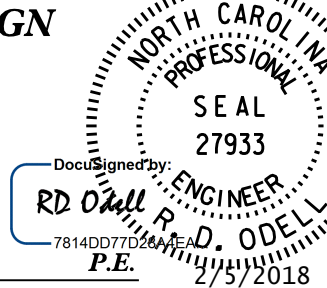
RD ODELL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER



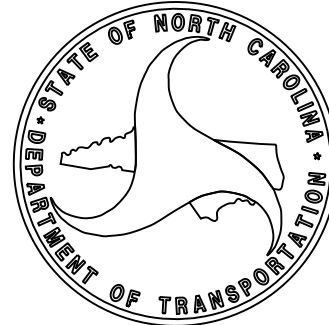
SIGNATURE:

ROADWAY DESIGN
ENGINEER



SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER

P.E.

REVISIONS

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C	SURVEY CONTROL
2A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2B-1 THRU 2B-2	DETOUR SHEETS
3B	EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-5	TRAFFIC CONTROL PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1 THRU X-22	CROSS-SECTIONS
C-1 THRU C-4	CULVERT PLANS

GENERAL NOTES

GENERAL NOTES:	2018 SPECIFICATIONS EFFECTIVE: 01/16/2018 REVISED:
GRADING AND SURFACING OR RESURFACING AND WIDENING:	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.
CLEARING:	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
SUPERELEVATION:	ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.
SHOULDER CONSTRUCTION:	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.
SIDE ROADS:	THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.
TEMPORARY SHORING:	SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".
SUBSURFACE PLANS:	SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT UPON REQUEST.
UTILITIES:	UTILITY OWNERS ON THIS PROJECT ARE: DUKE ENERGY, FRONTIER COMMUNICATION ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.
RIGHT-OF-WAY MARKERS:	ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES
DETOUR REMOVAL:	THE EXISTING FRENCH DRAIN SYSTEM THAT WILL BE DAMAGED DURING CONSTRUCTION ACTIVITIES WILL NEED TO BE REPAIRED ONCE THE DETOUR IS REMOVED.

ROADWAY ENGLISH STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS	
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:	
STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.41	Spring Box - Concrete or Brick
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)

PROJECT REFERENCE NO.		SHEET NO.	
17BPJ4R.48		1A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



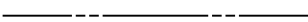







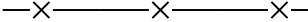










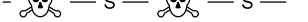
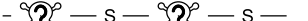
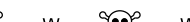


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Raleigh, NC 27605-3322
License No.: F-0840












ROADWAY
PLANS

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS


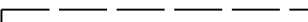







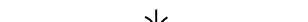

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	


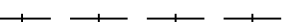

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	























HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	












RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	



RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

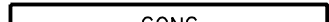








Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:









Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	
















EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	









UTILITIES:

POWER:	
Existing Power Pole _____	
Proposed Power Pole _____	
Existing Joint Use Pole _____	
Proposed Joint Use Pole _____	
Power Manhole _____	
Power Line Tower _____	
Power Transformer _____	
U/G Power Cable Hand Hole _____	
H-Frame Pole _____	
U/G Power Line LOS B (S.U.E.*) _____	-----P-----
U/G Power Line LOS C (S.U.E.*) _____	-----P-----
U/G Power Line LOS D (S.U.E.*) _____	-----P-----










TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	







WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	








TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	













GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned According to Utility Records	
End of Information	

6/2/99

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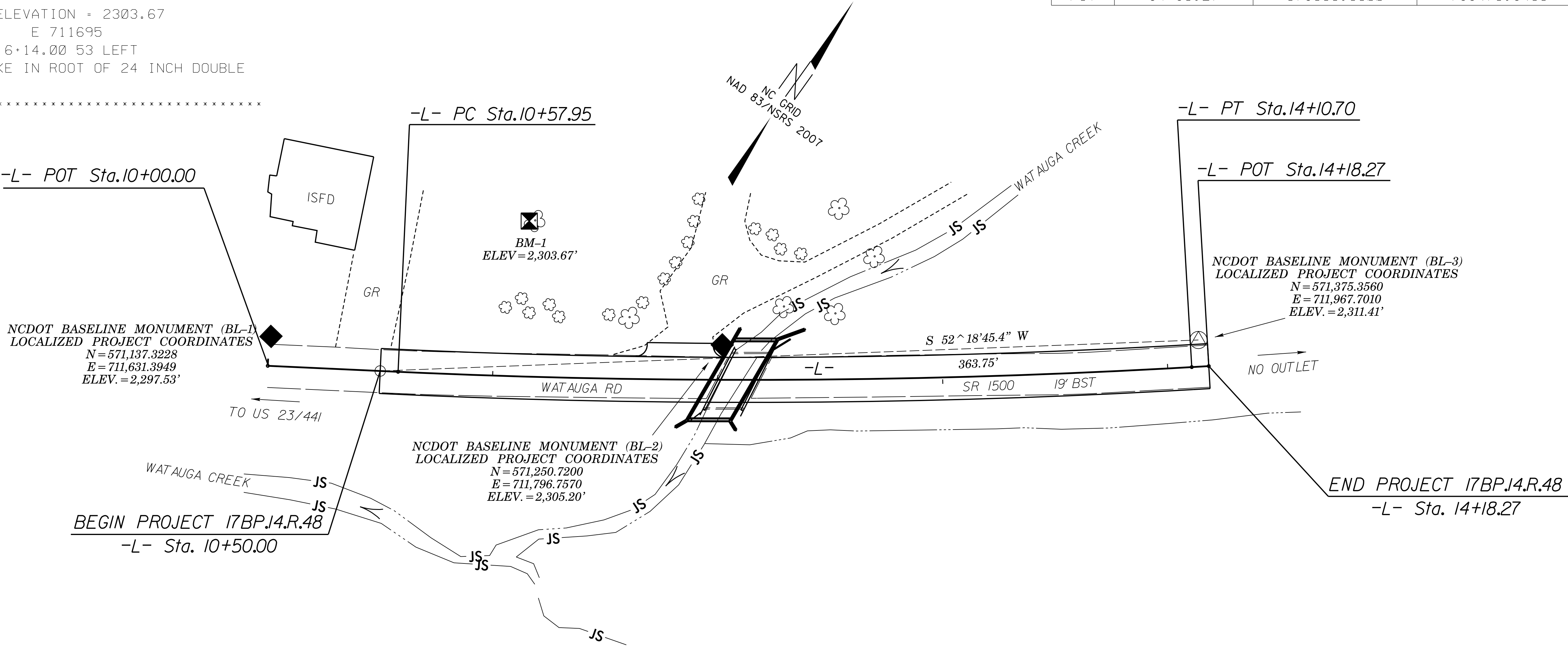
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17BP.14.R.48	1C
Location and Surveys	

SURVEY CONTROL SHEET 55-0308
-FINAL-

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	571137.3228	711631.3949	2297.53	10+00.81	13.16 LT
2		BL-2	571250.7200	711796.7570	2305.20	12+01.95	15.57 LT
3		BL-3	571375.3560	711967.7010	2311.41	14+14.35	11.86 LT

BM1 ELEVATION = 2303.67
N 571246 E 711695
BL STATION 6+14.00 53 LEFT
8 INCH SPIKE IN ROOT OF 24 INCH DOUBLE
MAPLE

-L- FINAL			
TYPE	STATION	NORTH	EAST
POT	10+00.00	571125.8316	711637.8597
PC	10+57.95	571157.2935	711686.5209
PT	14+10.70	571363.8300	711972.2919
POT	14+18.27	571368.5800	711978.1935



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "550308-BL3" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 571375.356(++) EASTING: 711967.701(++) ELEVATION: 2311.41(++) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99976669 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "550308-BL3" TO -L- STATION 10+50.00 IS S 52°18'45.4" W 363.75 (++) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

GEOID MODEL - G09NC
NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)

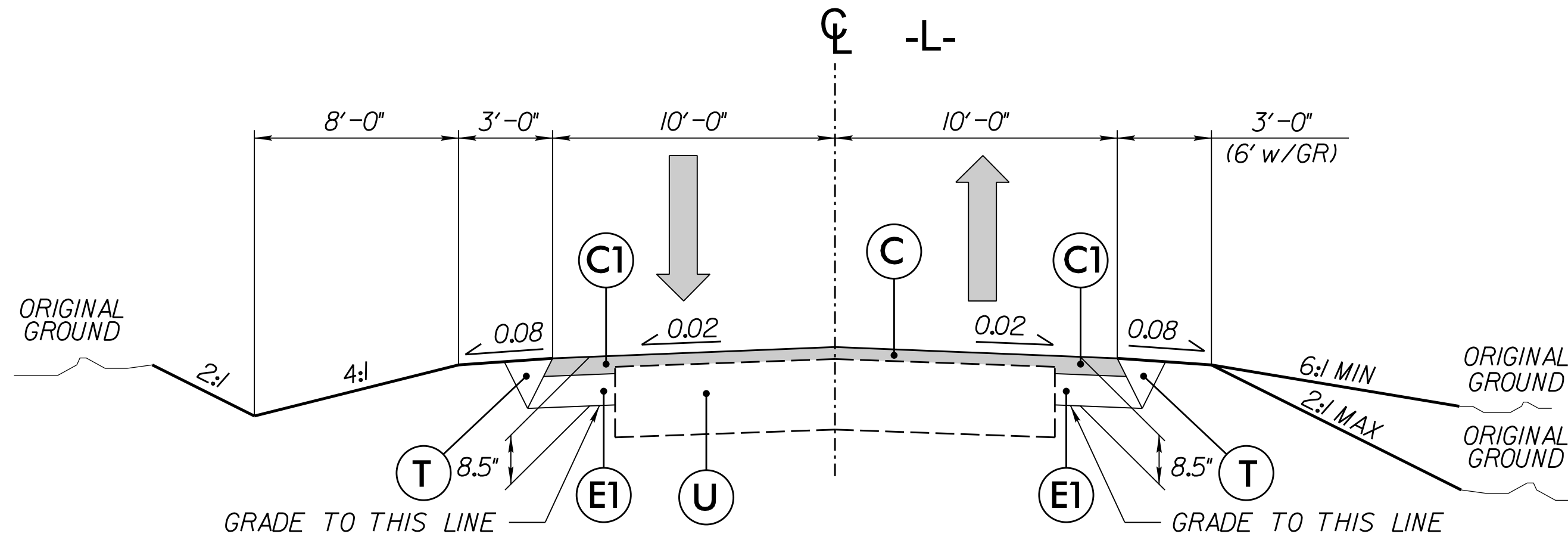
THE FILES TO BE FOUND ARE AS FOLLOWS:
550308_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

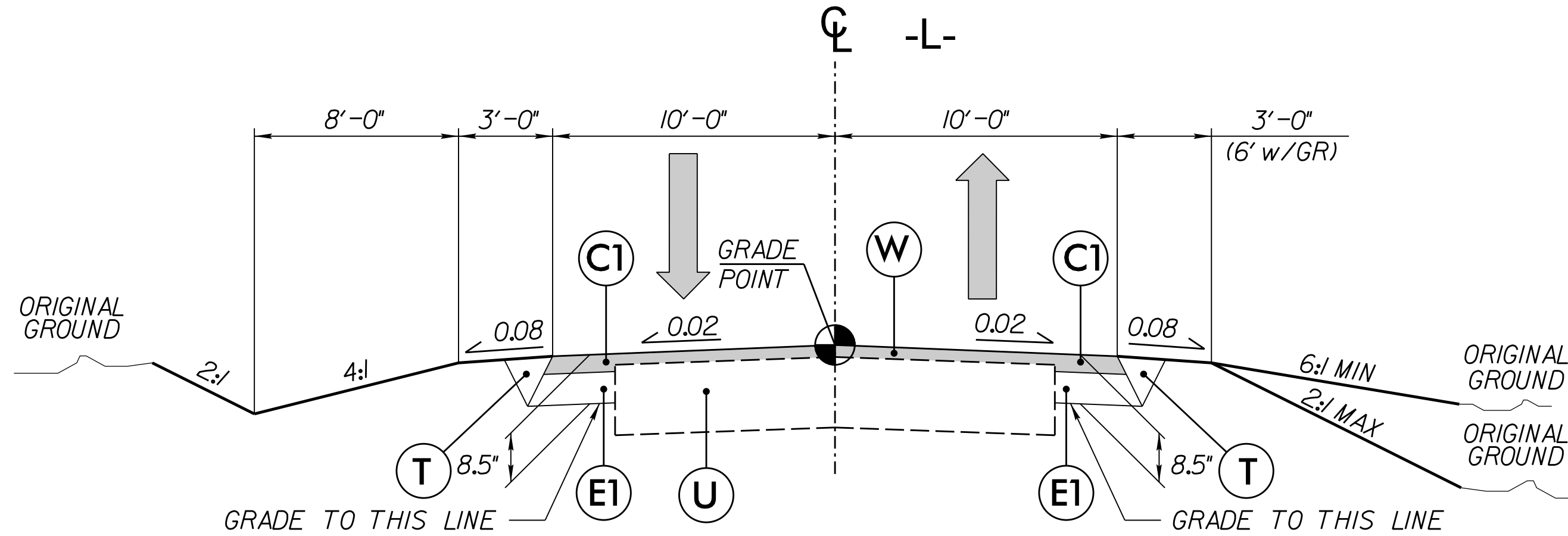
REVISIONS

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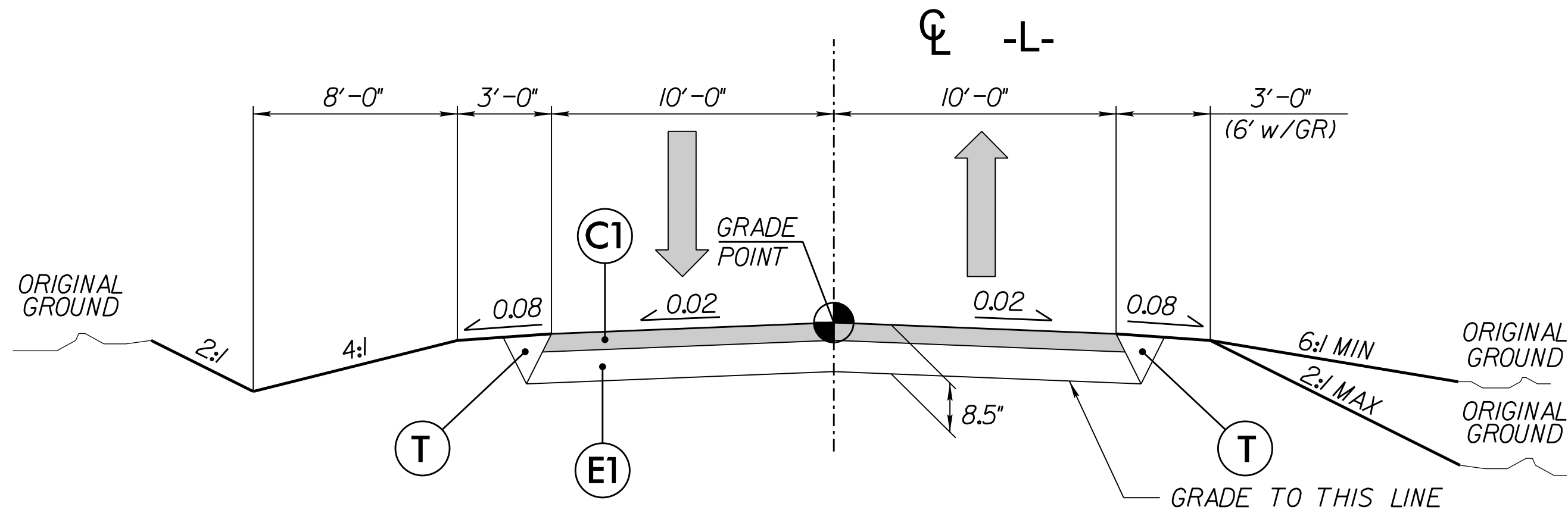
TYPICAL SECTION No. 1

-L- STA 10+50.00 TO -L- STA 10+70.00
-L- STA 13+80.00 TO -L- STA 14+18.27



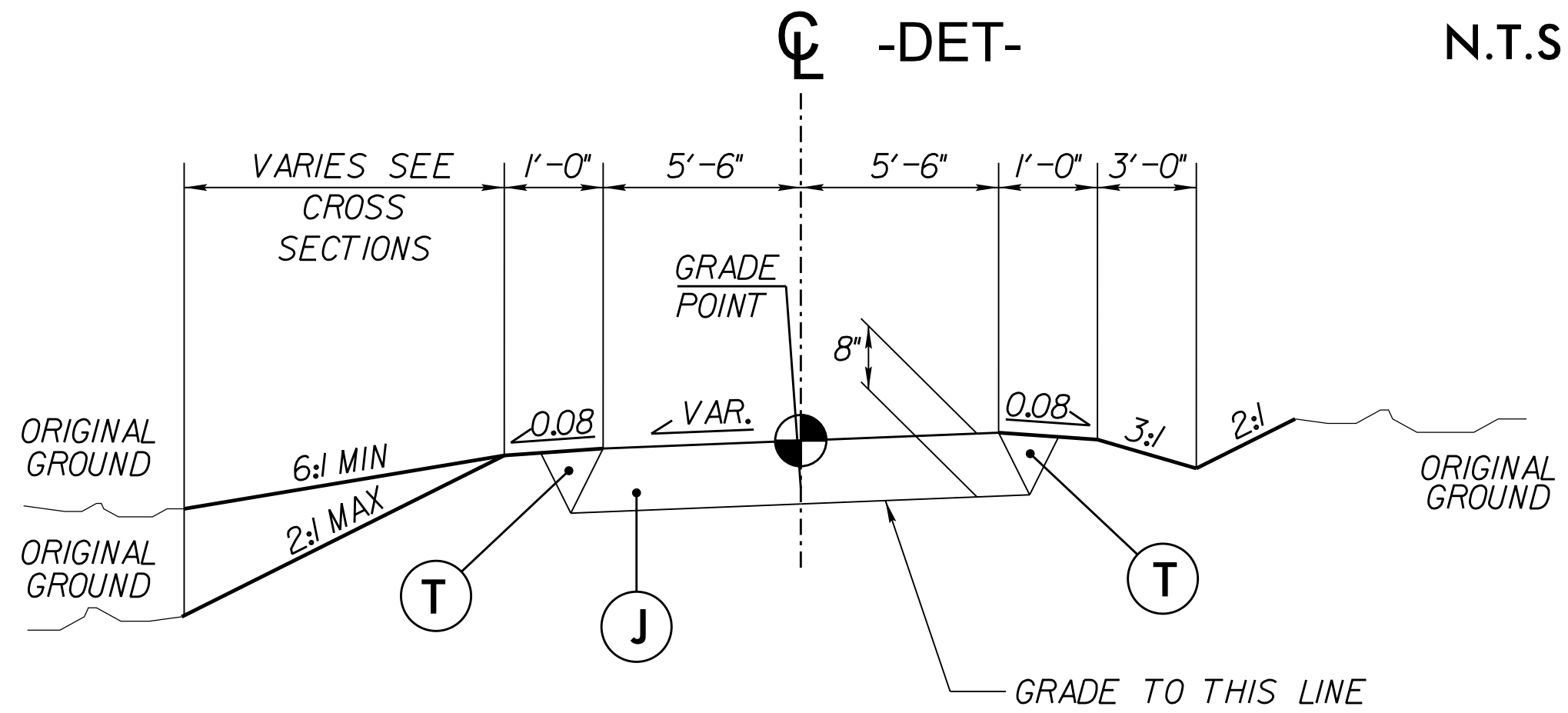
TYPICAL SECTION No. 2

-L- STA 10+70.00 TO -L- STA 11+90.00
-L- STA 12+20.00 TO -L- STA 13+80.00



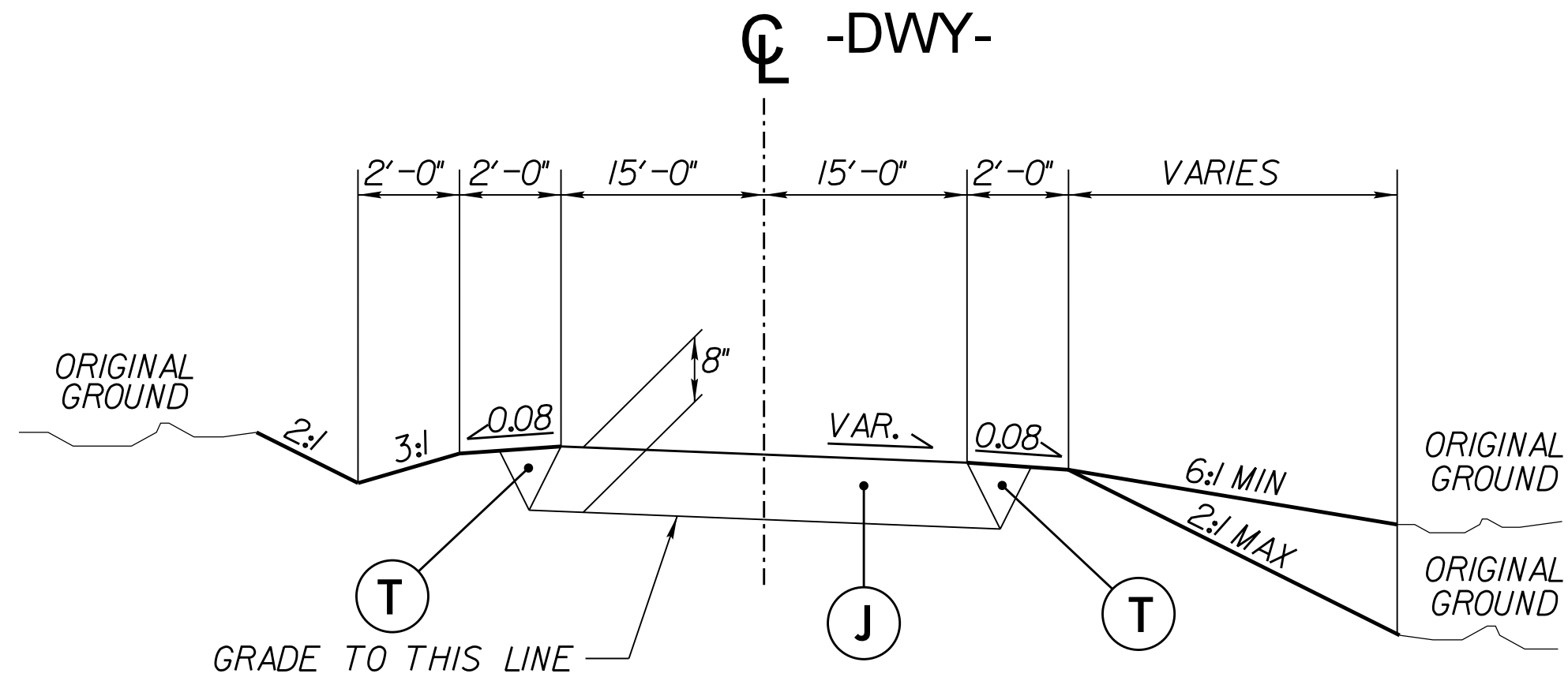
TYPICAL SECTION No. 3

-L- STA 11+90.00 TO -L- STA 12+20.00



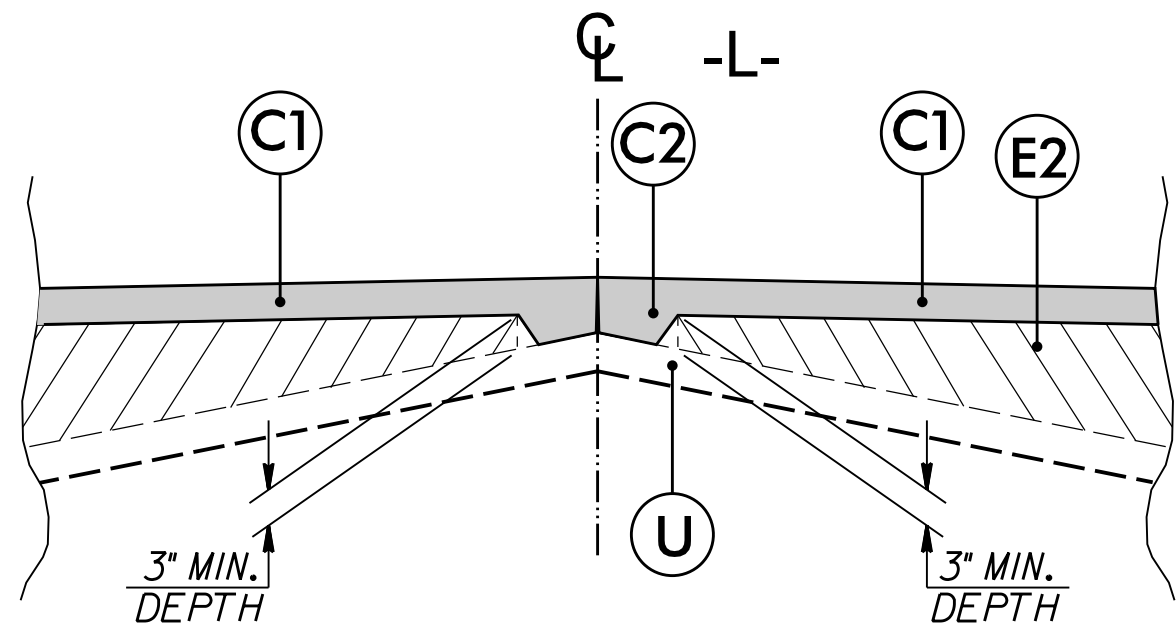
TYPICAL SECTION No. 3

-DET- STA 10+98.45 TO -DET- STA 13+34.22

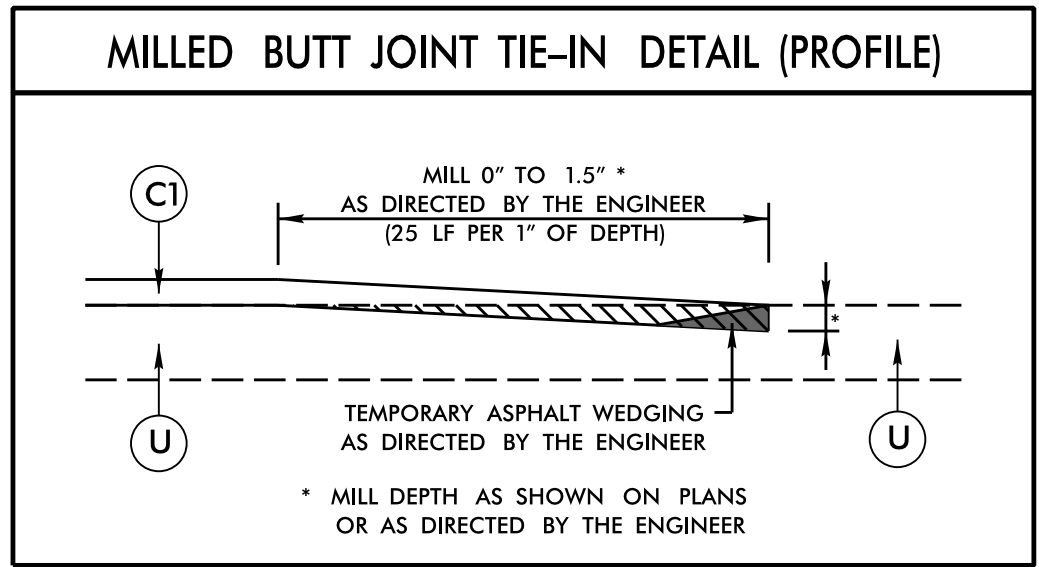


DRIVEWAY DETAIL

(SEE PLANS FOR DWY LOCATION)

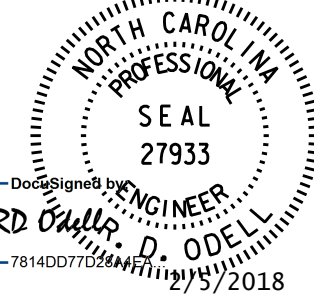
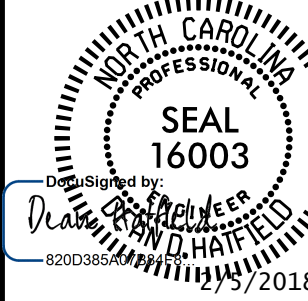


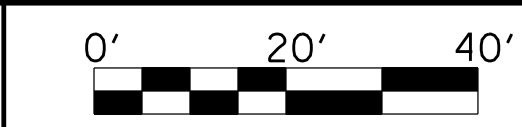
DETAIL SHOWING METHOD OF WEDGING



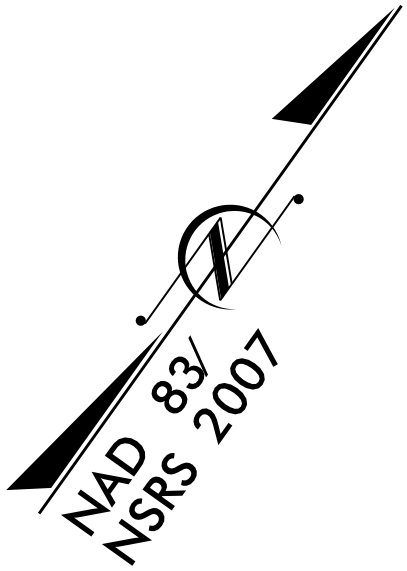
Note: Pavement edge slopes are 1:1 unless shown otherwise.

PAVEMENT SCHEDULE	
ITEM	DESCRIPTION
C	Prop. Approx 1.5" Asphalt Concrete Surface Course, Type S9.5B, at an Average Rate of 168 lbs. Per sq. yard.
C1	Prop. Approx 3.0" Asphalt Concrete Surface Course, Type S9.5B, at an Average Rate of 168 lbs. Per sq. yard in each of two layers.
C2	Prop. Var. Depth Asphalt Concrete Surface Course, Type S9.5B, at an Average Rate of 112 lbs. Per sq. yard Per 1" Depth, to be placed in layers not less than 1.5" or greater than 2" in depth.
E1	Prop. Approx 5.5" Asphalt Concrete Base Course, Type B25.0B, at an Average Rate of 627 lbs. Per sq. yard.
E2	Prop. Var. Depth Asphalt Concrete Base Course, Type B25.0B, at an Average Rate of 114 lbs. Per sq. yard Per 1" Depth, to be placed in layers not less than 4" or greater than 5.5" in depth.
J	Prop. 8" Aggregate Base Course.
T	Earth Material
U	Existing Pavement
W	Var. Depth Asphalt Pavement

PROJECT REFERENCE NO.		SHEET NO.	
17BPJ4.R.48		2A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



PROJECT REFERENCE NO. 17BP14.R.48		SHEET NO. 2B-1
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



REVISIONS

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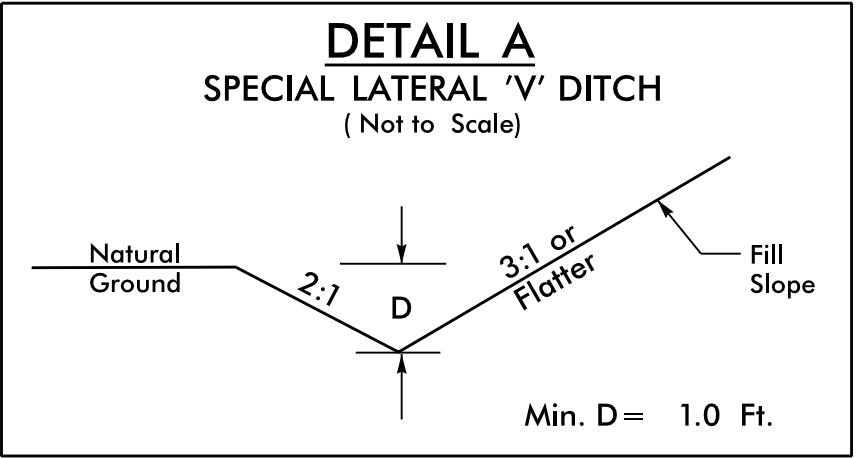
CURVE DATA FOR -DET-

PI Sta 10+78.45	PI Sta 12+00.81	PI Sta 13+63.25
$\Delta = 22^{\circ} 42' 41.3" (RT)$	$\Delta = 43^{\circ} 28' 24.0" (LT)$	$\Delta = 14^{\circ} 49' 02.7" (RT)$
$D = 28^{\circ} 38' 52.4"$	$D = 38^{\circ} 11' 49.9"$	$D = 22^{\circ} 55' 05.9"$
$L = 79.28'$	$L = 113.81'$	$L = 64.65'$
$T = 40.17'$	$T = 59.80'$	$T = 32.51'$
$R = 200.00'$	$R = 150.00'$	$R = 250.00'$
$SE = .015$	$SE = .04$	$SE = .03$
$RO = 22.5'$	$RO = 60'$	$RO = 45'$

NOTES:

THE EXISTING FRENCH DRAIN SYSTEM THAT MAY BE DAMAGED DURING CONSTRUCTION ACTIVITIES WILL NEED TO BE REPAIRED ONCE THE DETOUR IS REMOVED.

CONTRACTOR SHALL INSTALL UNDERDRAINS PER DIRECTION OF ENGINEER.




FROM -DET- STA. 11+83 TO STA. 13+50 -RT-

SEE SHEET 4 FOR PLAN
SEE SHEET 2B-2 FOR PROFILE

	LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 License No.: F-0840	ROADWAY PLANS
--	--	---------------

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LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

02040

HORIZONTAL

048

VERTICAL

PROJECT REFERENCE NO.
17BP14.R.48

SHEET NO.
2B-2

NORTH CAROLINA
PROFESSIONAL
SEAL
27933

RD ODELL D. ODELL
7814007/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
16003

RD ODELL D. ODELL
8200000/2018

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

-DET-

BEGIN GRADE
-DET- STA.10+98.45
ELEV=2301.61'

PROPOSED GRADE

EXISTING GROUND

END GRADE
-DET- STA.13+34.22
ELEV=2309.64

END LATERAL V. DITCH
STA.=13+50.00 RT
EI= 2304.72

HYDRAULIC DATA
DESIGN DISCHARGE = 140 CFS
DESIGN FREQUENCY = 2 YRS
DESIGN HW ELEVATION = 2304.5 FT
DATE OF SURVEY = JUNE 2011
W.S.ELEVATION AT DATE OF SURVEY = 2302.0 FT

PI = 12+00.00
EL = 2305.88'
VC = 60'
K = 43
DS = 35

BEGIN SP. LATERAL V. DITCH
STA = 11+83.00 RT
ELEV. = 2299.905

N.W.S.
ELEV: 2302.0
DATE: JUNE, 2011

2 @ 48"

STA = 12+70.00
EI = 2302.08

STA = 13+30.00
EI = 2304.48

SEE SHEET 2B-1 FOR PLAN

SEE SHEET 2B-1 FOR PLAN

0'20'40'

PROJECT REFERENCE NO.

17BPJ4.R.48

SHEET NO.

4

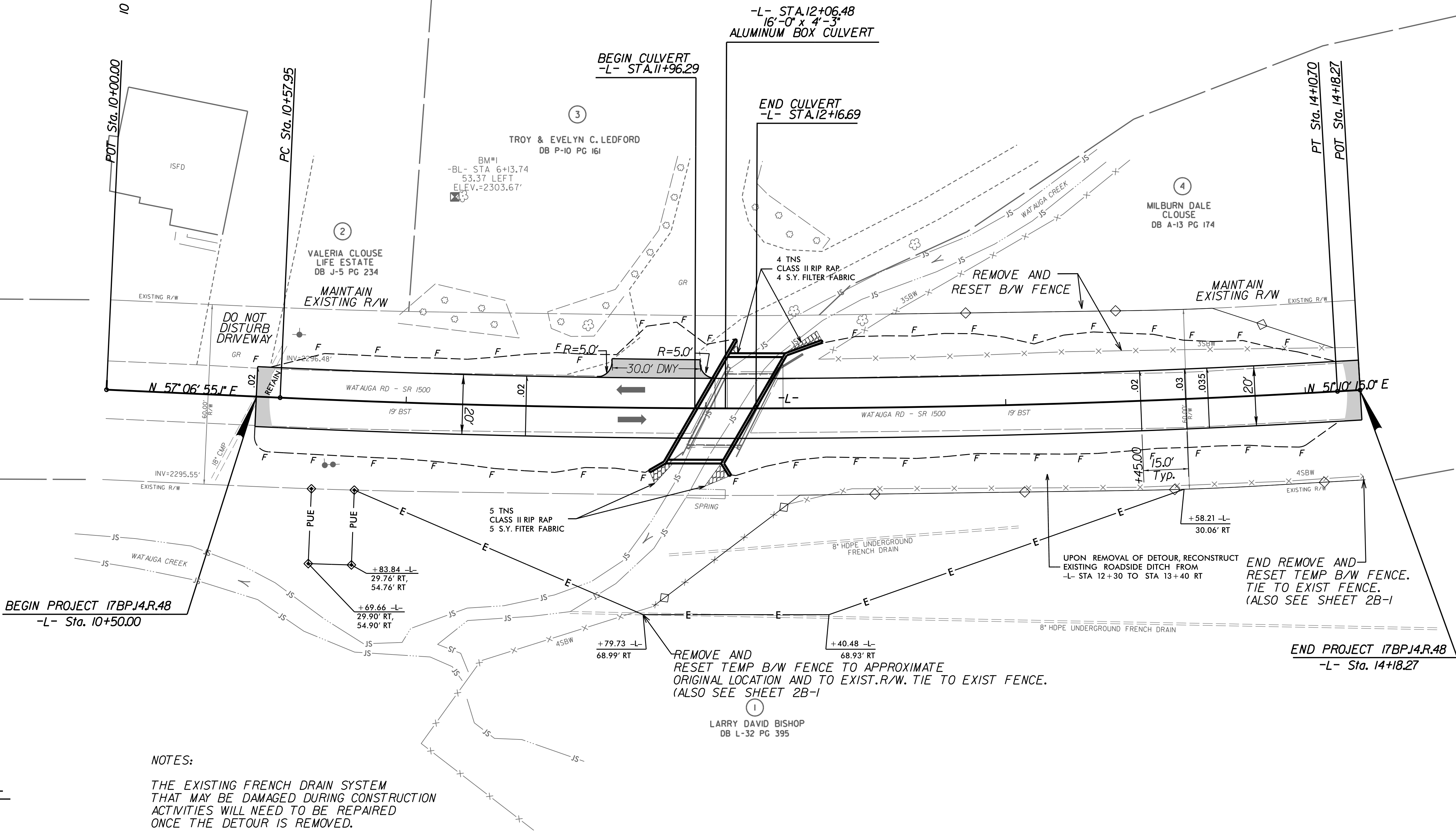
R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



CURVE DATA FOR -L-
PI Sta 12+34.48
 $\Delta = 5^{\circ}56'40.1''$ (LT)
 $D = 1^{\circ}41'06.6''$
 $L = 352.75'$
 $T = 176.53'$
 $R = 3,400.00'$
 $Se = .02$
 $RO = NA$

NOTES:
THE EXISTING FRENCH DRAIN SYSTEM THAT MAY BE DAMAGED DURING CONSTRUCTION ACTIVITIES WILL NEED TO BE REPAIRED ONCE THE DETOUR IS REMOVED.
CONTRACTOR SHALL INSTALL UNDERDRAINS PER DIRECTION OF ENGINEER.

REMOVE AND RESET TEMP B/W FENCE TO APPROXIMATE ORIGINAL LOCATION AND TO EXIST.R/W. TIE TO EXIST FENCE. (ALSO SEE SHEET 2B-1)
LARRY DAVID BISHOP
DB L-32 PG 395

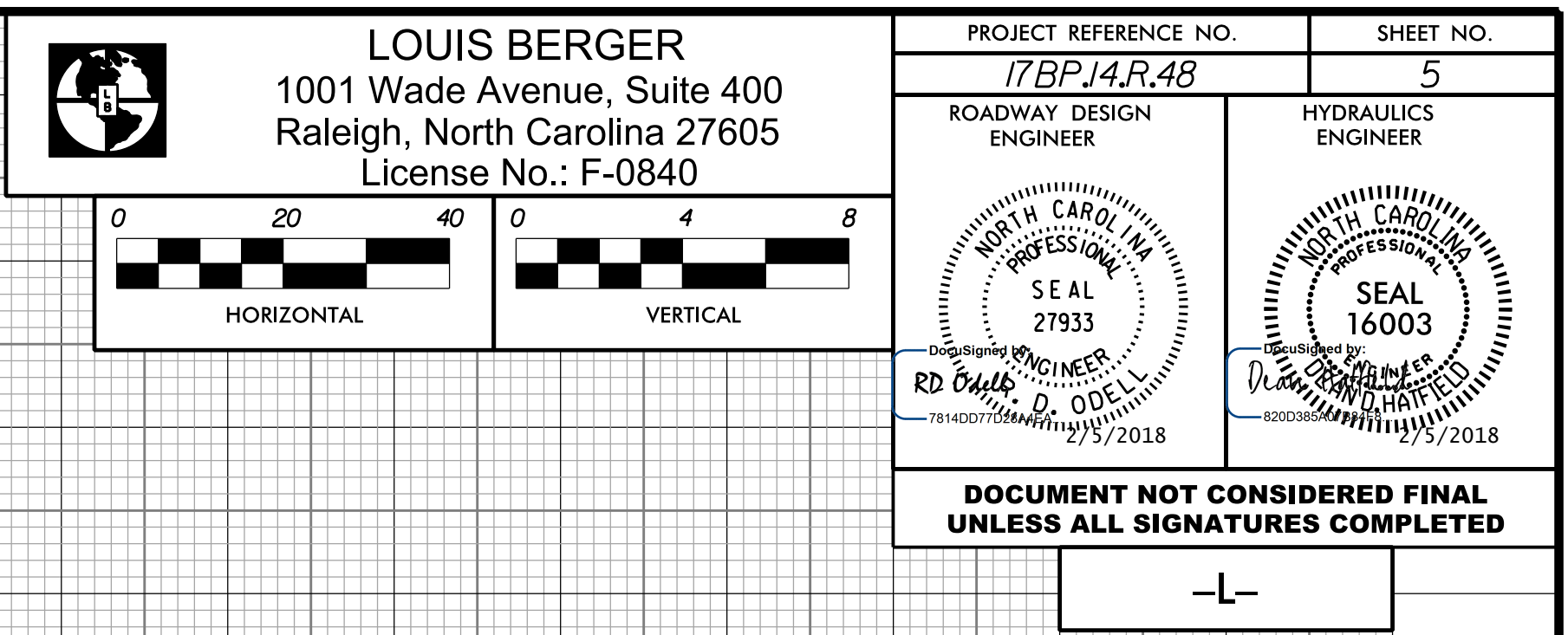
END PROJECT 17BPJ4.R.48
-L- Sta. 14+18.27

SEE SHEET 5 FOR PROFILE
SEE SHEETS C-1 THRU C-4 FOR CULVERT PLANS

LOUIS BERGER

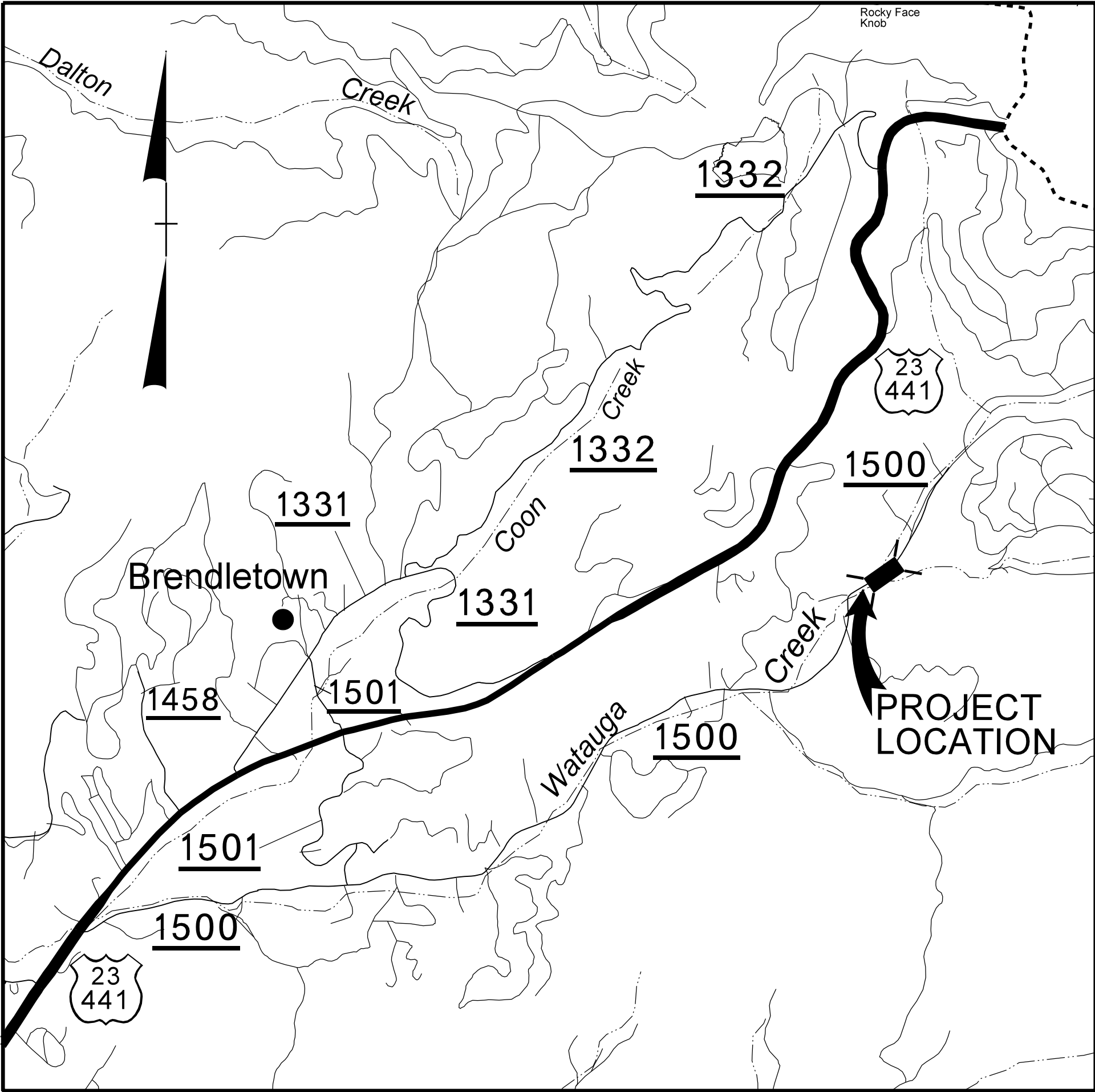
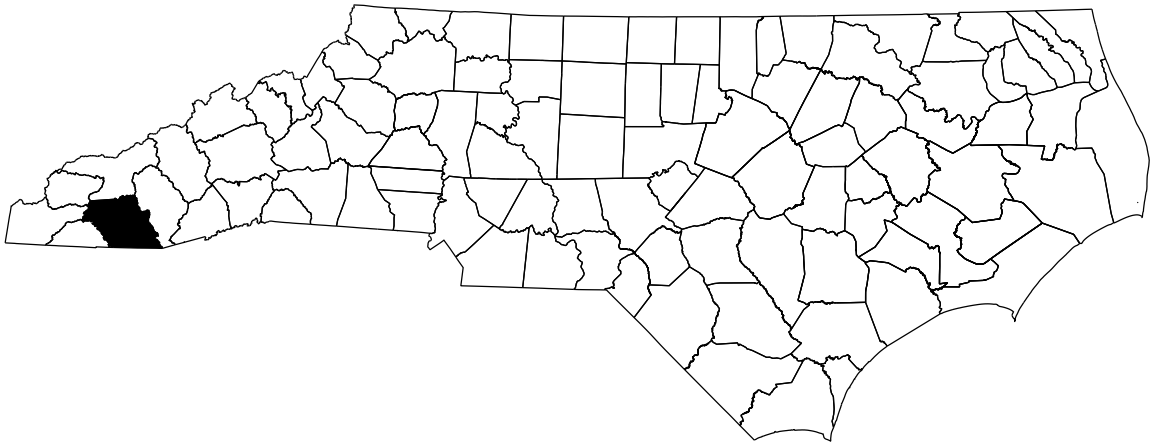
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY PLANS

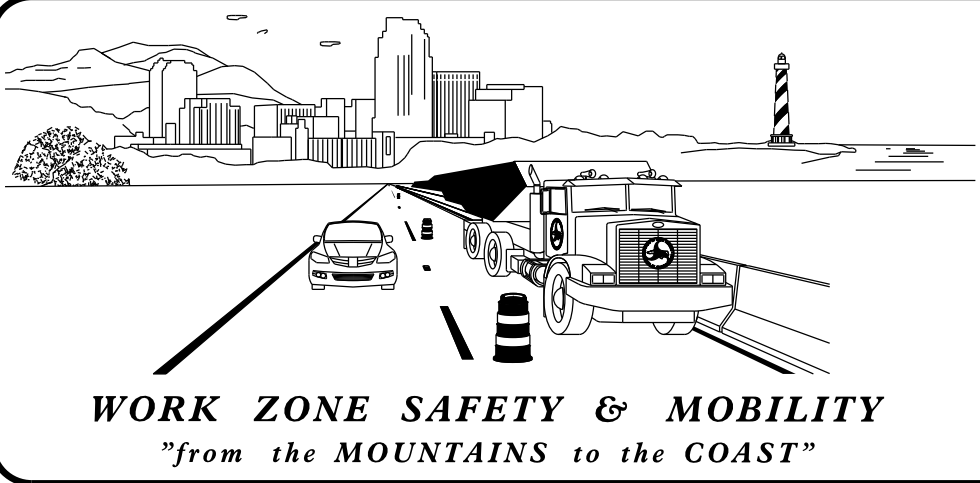


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN
MACON COUNTY



VICINITY MAP NTS
LOCATION: BRIDGE NO. 308 ON SR 1500 OVER WATAUGA CREEK

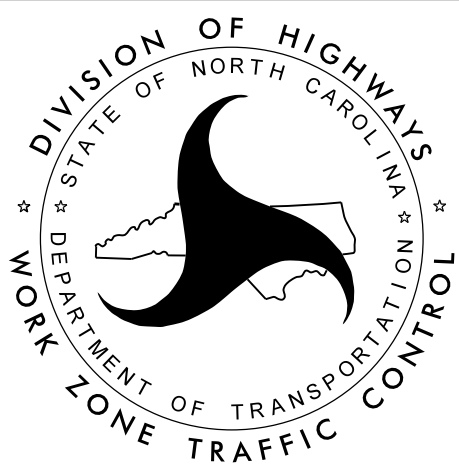


N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

JOSEPH E. HUMMER, PE STATE TRAFFIC MANAGEMENT ENGINEER

TRAFFIC CONTROL PROJECT ENGINEER

TRAFFIC CONTROL PROJECT DESIGN ENGINEER



Prepared In the Office of:

THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

DEAN D. HATFIELD, PE
PROJECT ENGINEER

GEORGE L. GETTIER, PE
PROJECT DESIGN ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

APPROVED: _____
DATE: _____

SEAL

SHEET NO.
TMP-1

PROJECT: 17BP.14.R.48

REVISIONS

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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS



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PROJECT REFERENCE NO.

17BPJ4.R.48

SHEET NO.

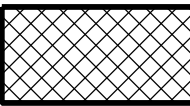
TMP-1A

DOCUMENT NOT CONSIDERED FINAL
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LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)



REMOVAL



WORK AREA

SIGNALS



TEMPORARY

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- DRUM
- BARRIER
- CRASH CUSHION

TEMPORARY SIGNING

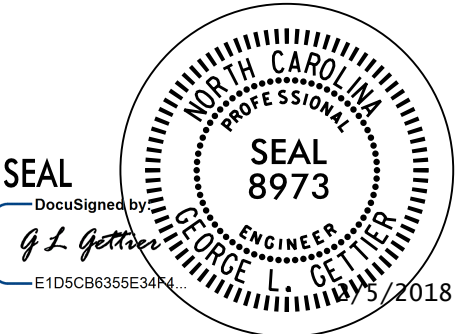
- STATIONARY SIGN

TEMPORARY PAVEMENT MARKING

- P224" WHITE STOPBAR
- PA4" WHITE EDGELINE

APPROVED: _____

DATE: _____



ROADWAY STANDARD DRAWINGS,
AND LEGEND

GENERAL NOTES /LOCAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
- BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
- BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
- BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200 IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

- K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

TRAFFIC CONTROL DEVICES

- L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- M) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:
- | ROAD NAME | MARKING | MARKER |
|-----------|---------|--------|
| -L- | PAINT | NONE |
- O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

- R) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 200 AND 400 RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

TEMPORARY SHORING

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 11+90 +/-, 11.5 FEET LEFT TO STATION 12+60 +/-, 11.5 FEET LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

MANAGEMENT STRATEGIES

- DURING CONSTRUCTION, SR 1500 (WATAUGA ROAD) TRAFFIC WILL BE PLACED IN A ONE LANE, TWO WAY PATTERN PER NCDOT.
- SIGNAGE AT THE BEGINNING AND END OF CONSTRUCTION WILL MANAGE SR 1500 TRAFFIC.
- THE CONSTRUCTION OF TIE-INS, TRAFFIC SHIFTS, PLACEMENT OF FINAL SURFACE COURSE AND PAVEMENT MARKINGS WILL BE PERFORMED USING FLAGGERS FOR TWO LANE, ONE WAY TRAFFIC OPERATION.
- MAINTAIN ACCESS TO DRIVEWAY AT 11+80 LT AT ALL TIMES DURING CONSTRUCTION.

PHASING

PHASE I

STEP 1: PRIOR TO CONSTRUCTION OPERATIONS, INSTALL WORK ZONE ADVANCE WARNING SIGNS PER SHEET TMP-3 AND ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3.

STEP 2: WHILE TRAFFIC IS MAINTAINED ON THE EXISTING ROADWAY, COMPLETE THE FOLLOWING (TMP-3):

- CONSTRUCT TEMPORARY PIPE AND TEMPORARY DRAINAGE.
- CONSTRUCT TEMPORARY SHORING.
- CONSTRUCT TEMPORARY DETOUR, USING R.S.D. 1101.02, 1 OF 14, AS NEEDED.
- PLACE PORTABLE CONCRETE BARRIER, TEMPORARY CRASH CUSHIONS AND BARRICADES.

PHASE II

STEP 1: TO BE COMPLETED IN ONE WORK PERIOD USING RDY STD. 1101.02 SHEET 1 OF 14, PERFORM THE FOLLOWING (TMP-4):

- CONSTRUCT/INSTALL TEMPORARY TRAFFIC SIGNAL.
- PLACE TEMPORARY MARKINGS ON EXISTING SR 1500 FOR A TEMPORARY ONE LANE, TWO WAY TRAFFIC PATTERN.
- CONSTRUCT DETOUR TIE-INS TO EXISTING ROADWAY.
- INSTALL ADDITIONAL SIGNS FOR TEMPORARY TRAFFIC SIGNAL, ACTIVATE THE SIGNAL, AND SHIFT TRAFFIC TO TEMPORARY ONE LANE, TWO WAY PATTERN.

STEP 2: WITH TRAFFIC ON TEMPORARY DETOUR, COMPLETE THE FOLLOWING (TMP-4):

- REMOVE EXISTING CULVERT IN ACCORDANCE WITH ROADWAY AND CULVERT PLANS.
- CONSTRUCT PROPOSED CULVERT (SEE CULVERT PLANS).
- CONSTRUCT -L- FROM STA. 10+50± TO -L- STA. 14+18.27± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE ADDITIONAL DRUMS TO DIRECT ONE LANE TRAFFIC WHEN CONSTRUCTING WIDENING FROM -L- STA. 10+50 TO STA. 10+75± AND FROM STA. 13+50+ TO STA. 14+18±. USE TEMPORARY SIGNALS TO STOP TRAFFIC FOR PAVING IN DETOUR TIE AREA.

PHASE III

STEP 1: MAINTAIN THE TEMPORARY TRAFFIC SIGNAL TO PERFORM THE FOLLOWING (TMP-5):

- PLACE TRAFFIC INTO A TEMPORARY ONE- LANE, TWO WAY TRAFFIC PATTERN ACROSS THE PROPOSED STRUCTURE.
- COMPLETE THE REMOVAL OF THE DETOUR AND ASSOCIATED TRAFFIC CONTROL DEVICES.
- PERFORM ALL NECESSARY SHOULDER AND DRAINAGE WORK AWAY FROM TRAFFIC.

STEP 2: TO BE COMPLETED IN ONE WORK PERIOD, CONSTRUCT TIE-INS AND PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS. AT THE END OF THE WORK PERIOD OPEN CULVERT TO FINAL TRAFFIC PATTERN.

STEP 3: COMPLETE THE REMOVAL OF ANY REMAINING TRAFFIC CONTROL DEVICES.

APPROVED: _____ DATE: _____

SEAL

DocuSigned by
G L. Gettles

E10DCB9355E34F6

SEAL

8973

ENGINEER

GEORGE L. GETTLES


2018

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

WORK ZONE TRAFFIC CONTROL



TRANSPORTATION OPERATIONS PLAN:
(MANAGEMENT STRATEGIES,
GENERAL NOTES AND LOCAL NOTES
AND PHASING)

REVISIONS

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THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322

PROJECT REFERENCE NO.

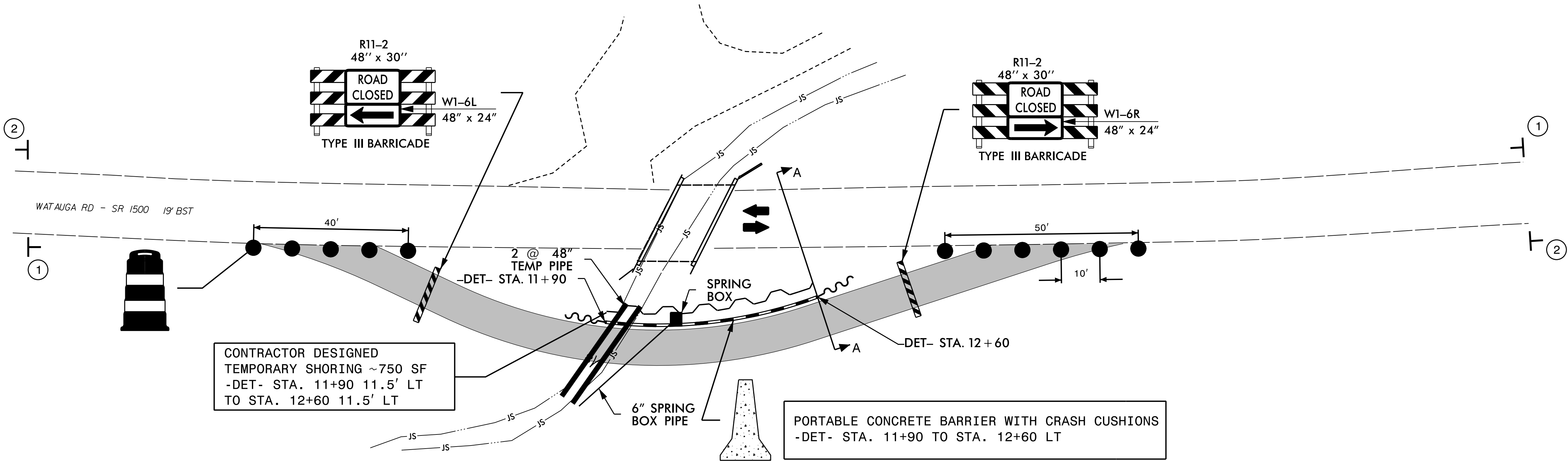
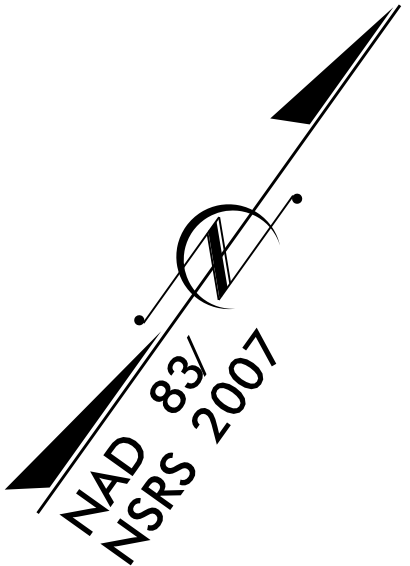
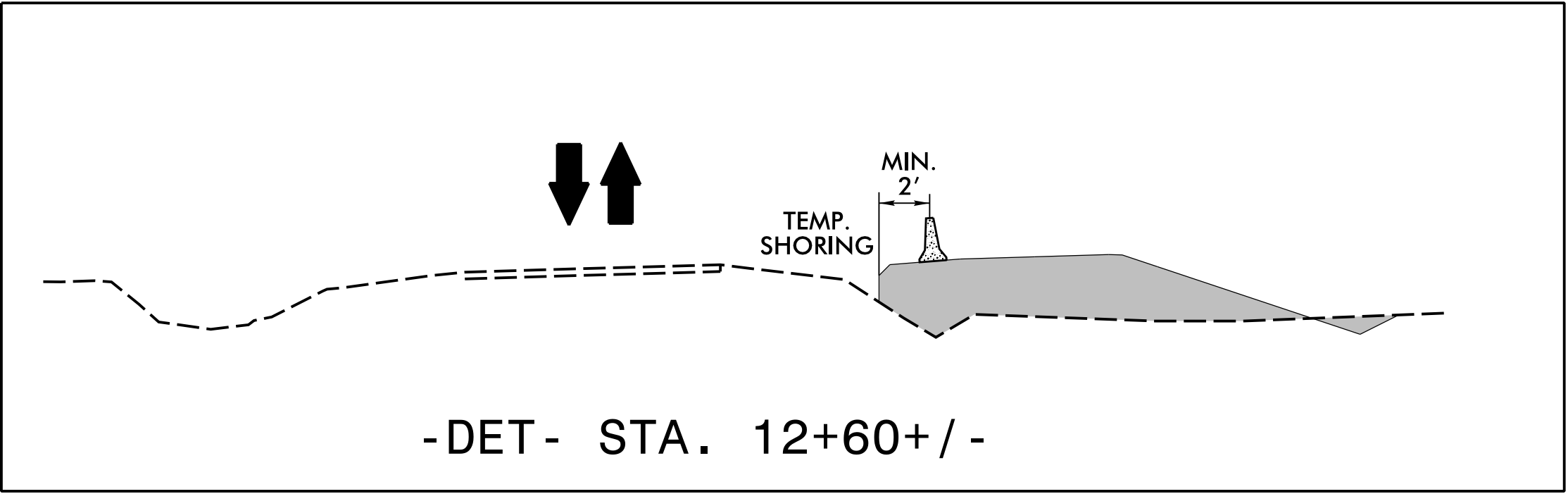
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SHEET NO.

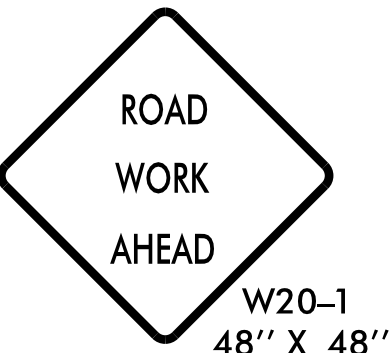
TMP-3

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UNLESS ALL SIGNATURES COMPLETED

A-A



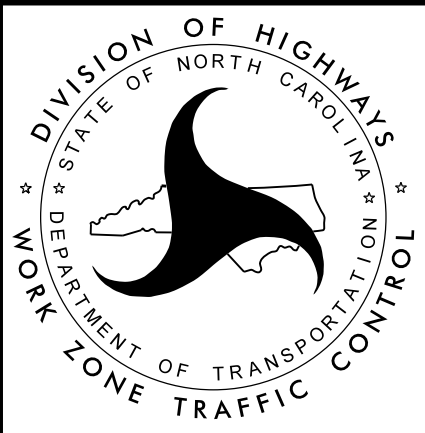
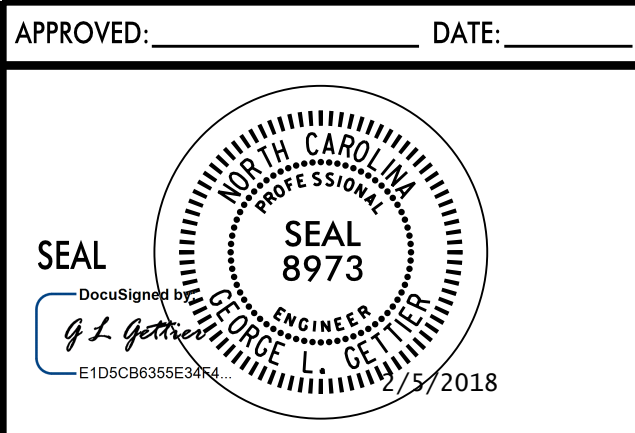
- NOTES:
- FOR CONSTRUCTION PHASING NOTES, SEE SHEET TMP-1B.
 - ALL SIGN LOCATIONS ARE APPROXIMATE.
 - SEE ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3 FOR SIGN LOCATIONS AND APPLICABLE NOTES.



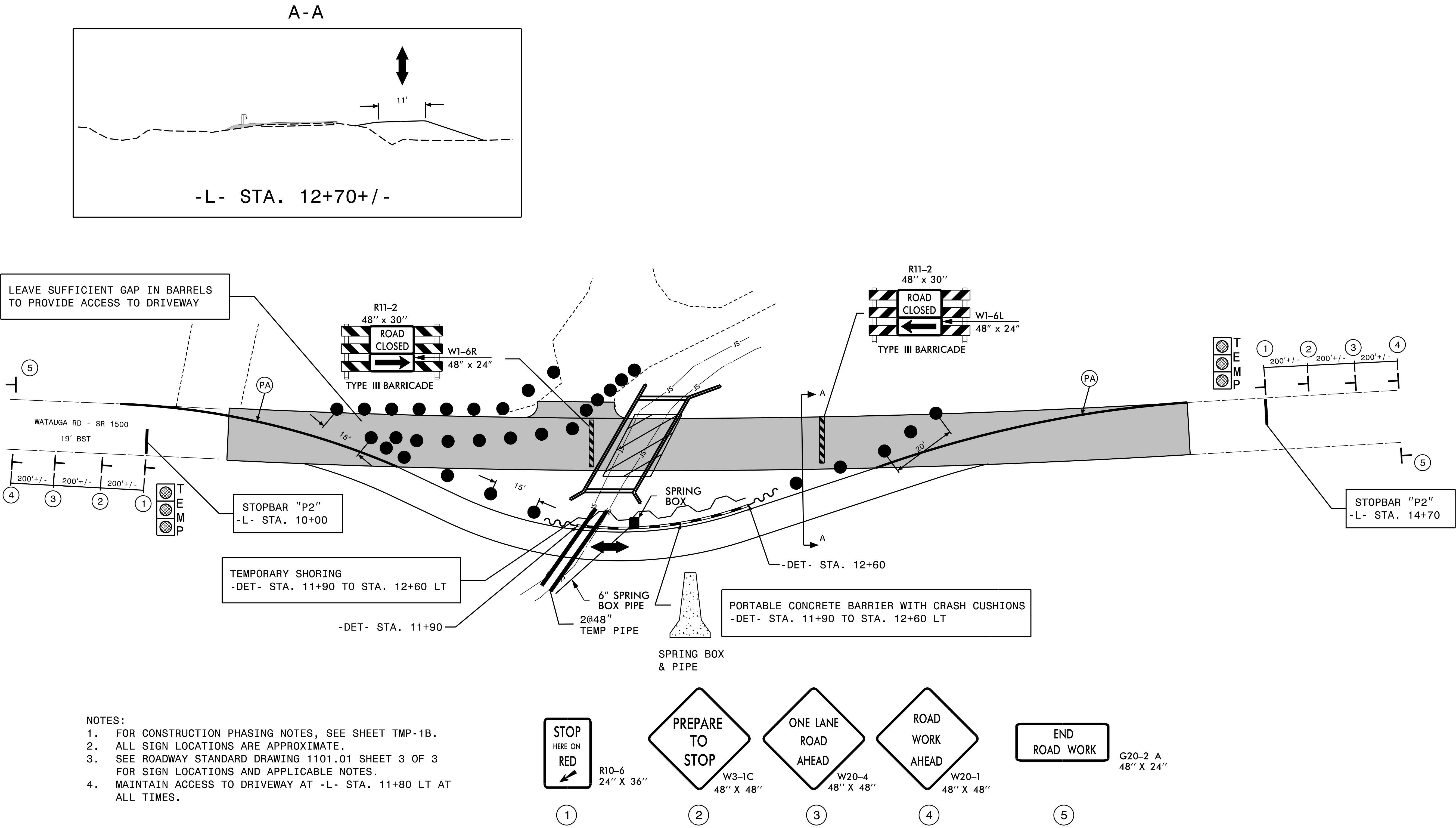
END
ROAD WORK

G20-2 A
48\"/>

NOTE: NOT TO SCALE



TEMPORARY TRAFFIC CONTROL
PHASE I



- NOTES:
1. FOR CONSTRUCTION PHASING NOTES, SEE SHEET TMP-1B.
 2. ALL SIGN LOCATIONS ARE APPROXIMATE.
 3. SEE ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3 FOR SIGN LOCATIONS AND APPLICABLE NOTES.
 4. MAINTAIN ACCESS TO DRIVEWAY AT -L- STA. 11+80 LT AT ALL TIMES.

NOTE: NOT TO SCALE

APPROVED: _____ DATE: _____

SEAL
DocuSigned by
G. L. Goffin
E104C86355E3A
2018

SEAL
8973
ENGINEER
GEORGE L. GETTNER



TEMPORARY TRAFFIC CONTROL
PHASE II

REVISIONS

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G:\CADD\Plot\CKE21004_Group 3\CKE21004_Group3_rdu TMP.tbl



THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322

PROJECT REFERENCE NO.

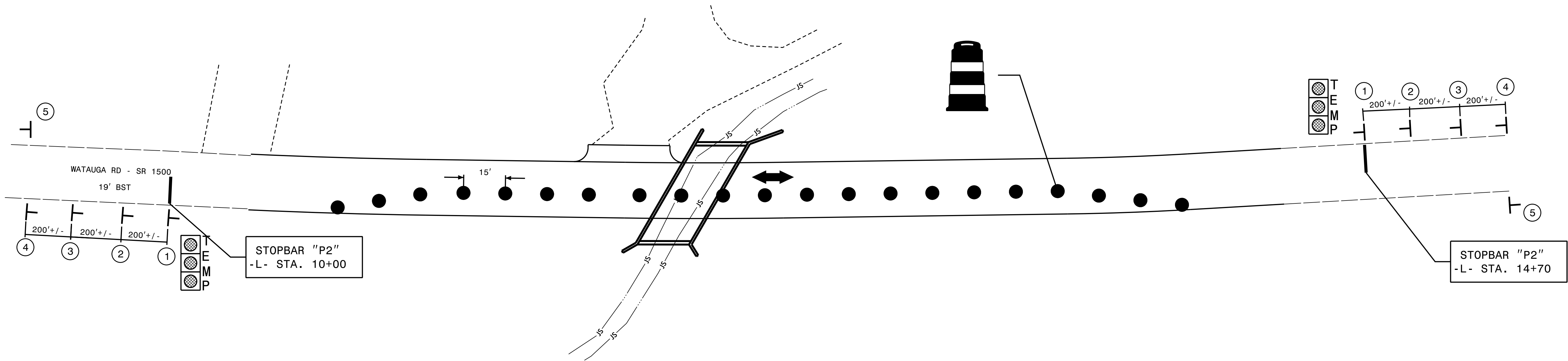
17BP14.R.48

SHEET NO.

TMP-5

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



NOTES:

1. FOR CONSTRUCTION PHASING NOTES, SEE SHEET TMP-1B.
2. ALL SIGN LOCATIONS ARE APPROXIMATE.
3. SEE ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3 FOR SIGN LOCATIONS AND APPLICABLE NOTES.
4. MAINTAIN ACCESS TO DRIVEWAY AT -L- STA. 11+80 LT AT ALL TIMES.



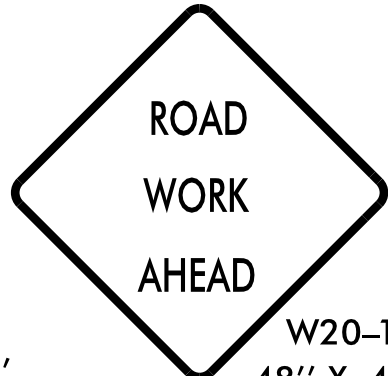
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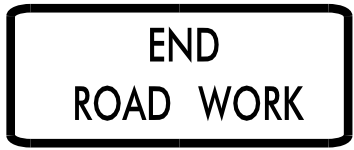
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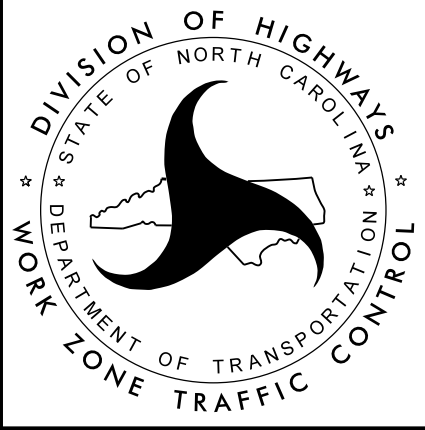
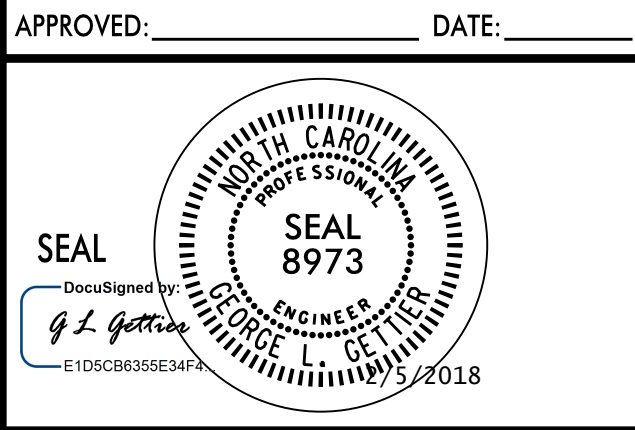


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5

NOTE: NOT TO SCALE



TEMPORARY TRAFFIC CONTROL
PHASE III

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
MACON COUNTY

LOCATION: BRIDGE NO. 308 ON SR 1500 (WATAUGA RD)
OVER WATAUGA CREEK

PROJECT REFERENCE NO.
17BPJ4R.48

SHEET NO.
PMP-1

DOCUMENT NOT CONSIDERED FINAL
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Seal of the State of North Carolina
Professional Engineer
Louis Berger
E106CB8355E347
5/2018

DocuSign
92464616
10/15/2018

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INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE, SCHEDULE, AND PAVEMENT MARKING DETAIL

GENERAL NOTES

THE FOLLOWING NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L-	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE, PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

C) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

D) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

E) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

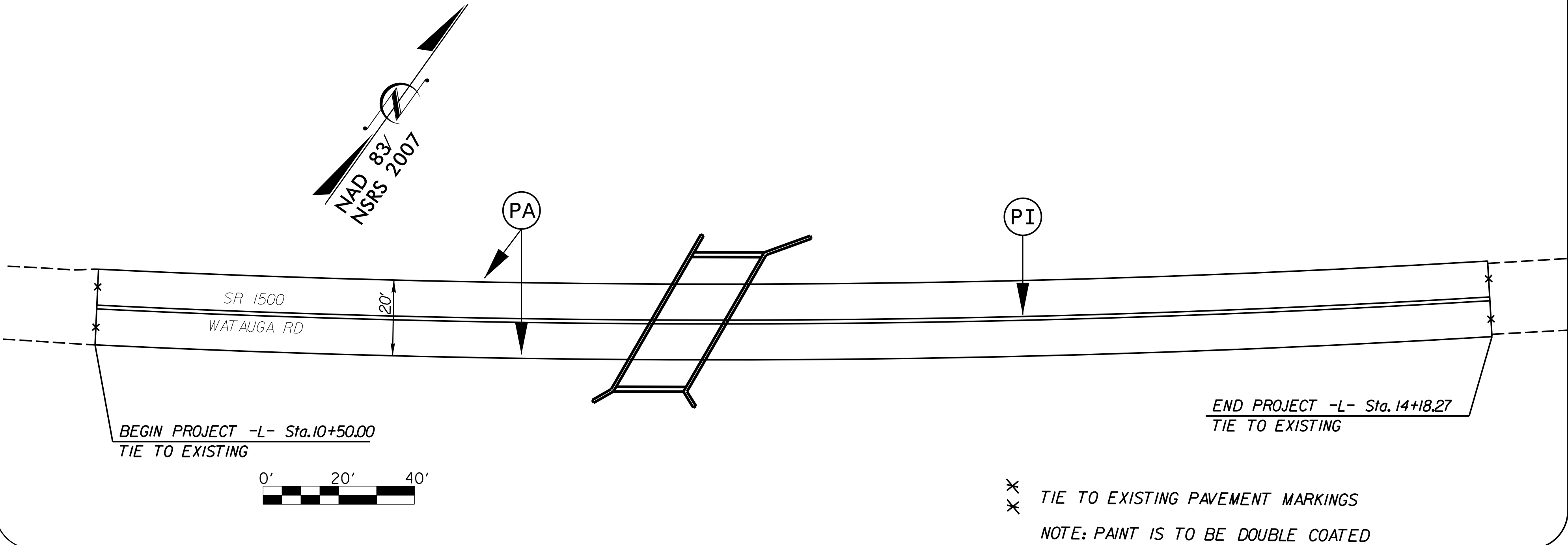
STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS

PAVEMENT MARKING SCHEDULE

ASPHALT PAVEMENT DESIGN
(AS SHOWN)

PAVEMENT MARKING LINES
PA - PAINT - WHITE EDGELINE (4")
PI - PAINT - YELLOW DOUBLE CENTER (4")

PAVEMENT MARKING DETAIL





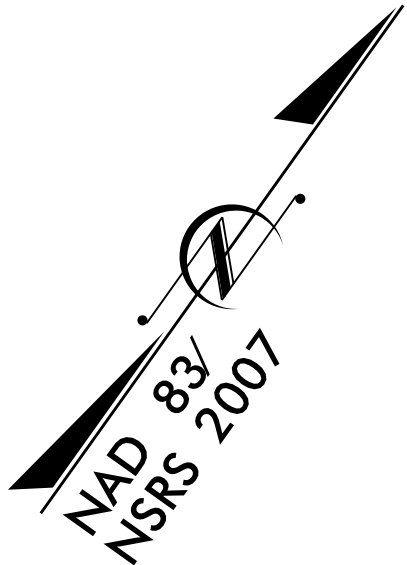
PROJECT REFERENCE NO.	SHEET NO.
17BP14.R.48	EC-1
RW SHEET NO.	

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

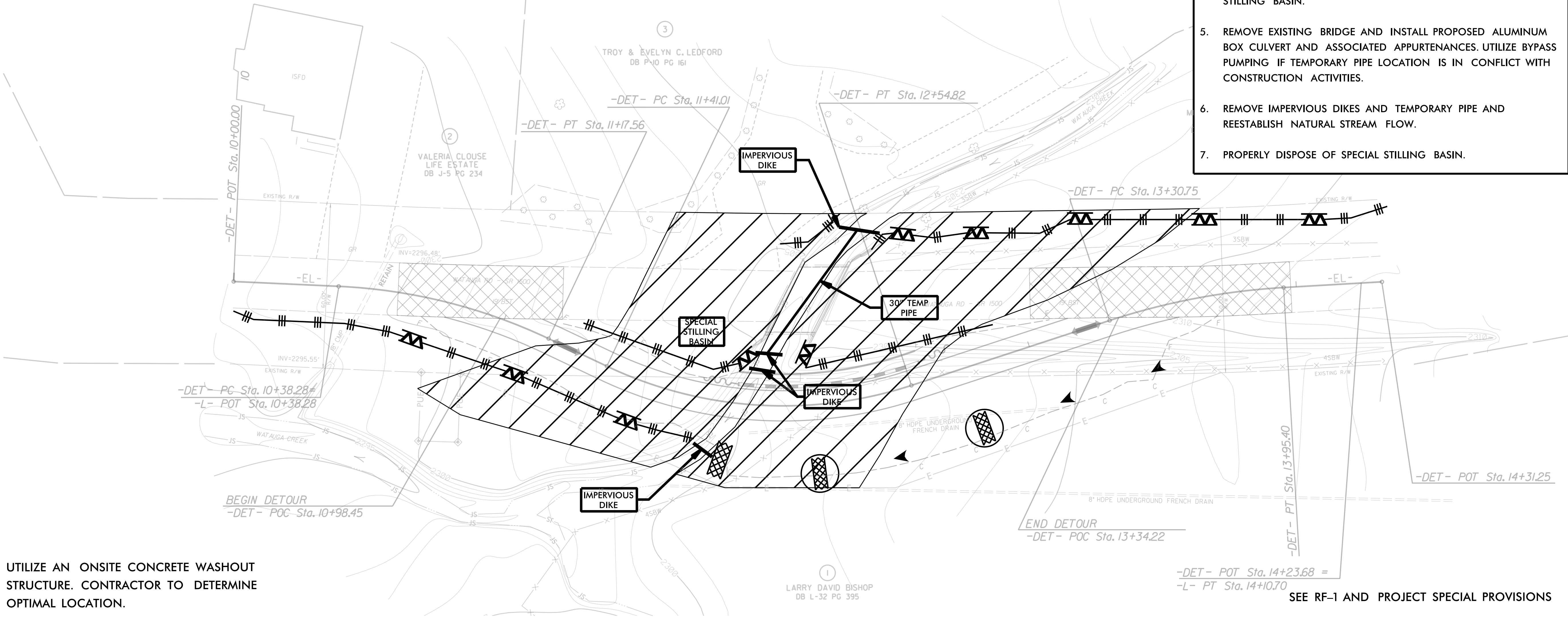


EROSION CONTROL

PHASE I

CONSTRUCTION SEQUENCE

1. CONSTRUCT IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF TEMPORARY DETOUR AND UTILIZE BYPASS PUMPING SYSTEM AS SHOWN.
2. INSTALL 2@48" TEMPORARY PIPES, TEMPORARY SHORING AND DETOUR. REMOVE BYPASS PUMPING SYSTEM AND IMPERVIOUS DIKES ONCE TEMPORARY PIPES ARE INSTALLED.
3. INSTALL IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF EXISTING BRIDGE AND 30" TEMPORARY PIPE AS SHOWN.
4. UTILIZE SPECIAL STILLING BASIN TO DEWATER WORK AREA. CONTRACTOR TO DETERMINE OPTIMAL LOCATION OF SPECIAL STILLING BASIN.
5. REMOVE EXISTING BRIDGE AND INSTALL PROPOSED ALUMINUM BOX CULVERT AND ASSOCIATED APPURTENANCES. UTILIZE BYPASS PUMPING IF TEMPORARY PIPE LOCATION IS IN CONFLICT WITH CONSTRUCTION ACTIVITIES.
6. REMOVE IMPERVIOUS DIKES AND TEMPORARY PIPE AND REESTABLISH NATURAL STREAM FLOW.
7. PROPERLY DISPOSE OF SPECIAL STILLING BASIN.



UTILIZE AN ONSITE CONCRETE WASHOUT STRUCTURE. CONTRACTOR TO DETERMINE OPTIMAL LOCATION.

SEE RF-1 AND PROJECT SPECIAL PROVISIONS

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

ROADSIDE ENVIRONMENTAL UNIT DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

EROSION AND SEDIMENT CONTROL MEASURES

Sid. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1630.06	Special Stilling Basin	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	



TROUT STREAM BUFFER ZONE

Place Matting for Erosion Control in Temporary Ditches

WALTER D. ROBERTS, III

LEVEL IIIA NAME

3514

LEVEL IIIA CERTIFICATION NO.



LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY PLANS



PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.48	EC-2
RW SHEET NO.	

EROSION CONTROL

PHASE II

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

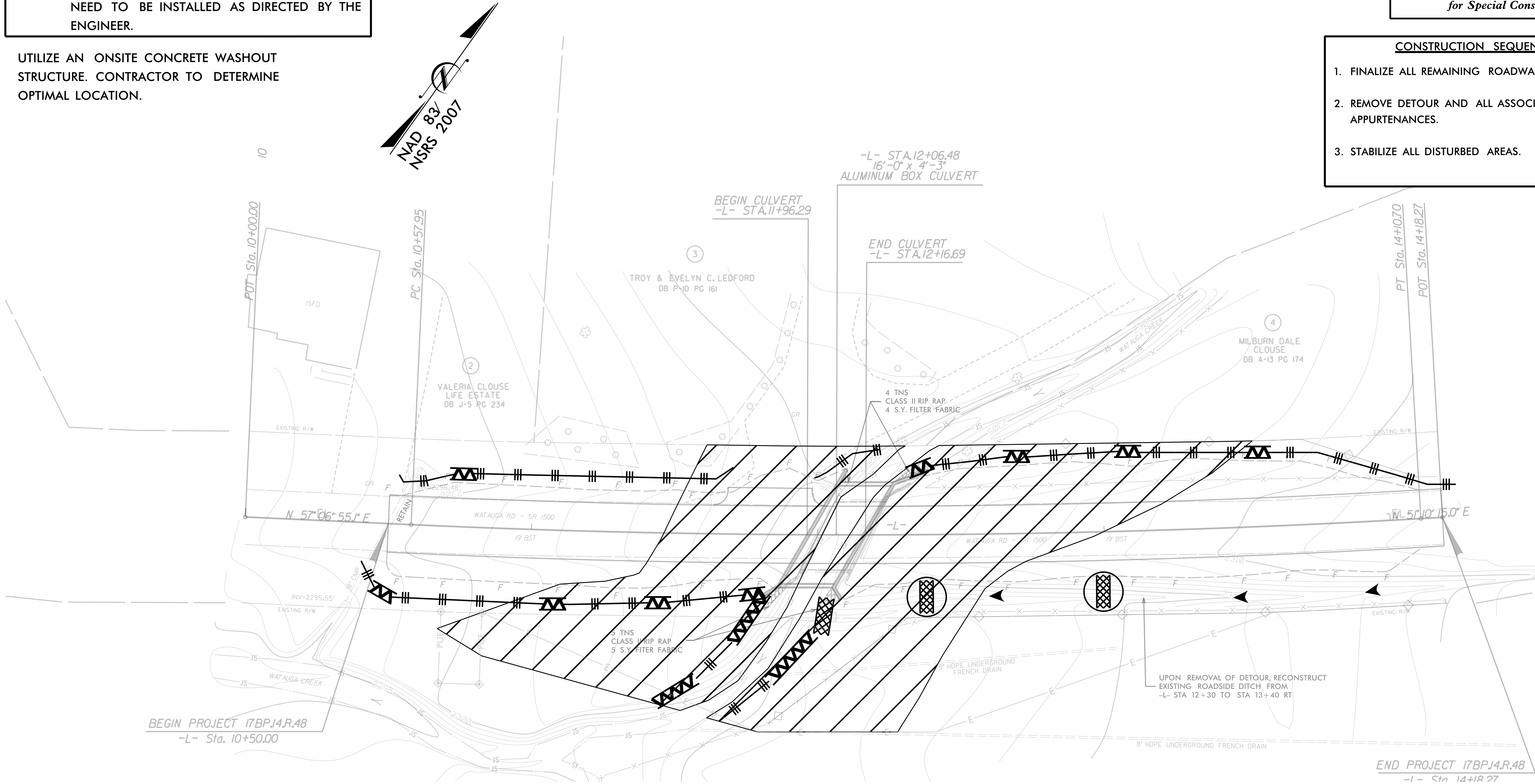
UTILIZE AN ONSITE CONCRETE WASHOUT STRUCTURE. CONTRACTOR TO DETERMINE OPTIMAL LOCATION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

CONSTRUCTION SEQUENCE

1. FINALIZE ALL REMAINING ROADWAY IMPROVEMENTS.
2. REMOVE DETOUR AND ALL ASSOCIATED APPURTENANCES.
3. STABILIZE ALL DISTURBED AREAS.



Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
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1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

ROADSIDE ENVIRONMENTAL UNIT DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

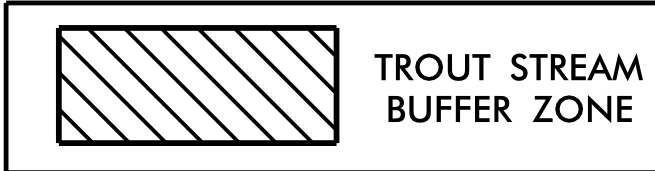
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

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EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	△△△△△△△△
1633.01	Temporary Rock Silt Check Type-A	⊠
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊠
1633.02	Temporary Rock Silt Check Type-B	▶



TROUT STREAM
BUFFER ZONE

SEE RF-1 PROJECT SPECIAL PROVISIONS

WALTER D. ROBERTS, III
LEVEL IIIA NAME

3514
LEVEL IIIA CERTIFICATION NO.



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Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY
PLANS

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4R.48	EC-3
R/W SHEET NO.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES,SWALES,DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1,14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE,EXCEPT FOR PERIMETERS AND HOW ZONES.

REVISIONS

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DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

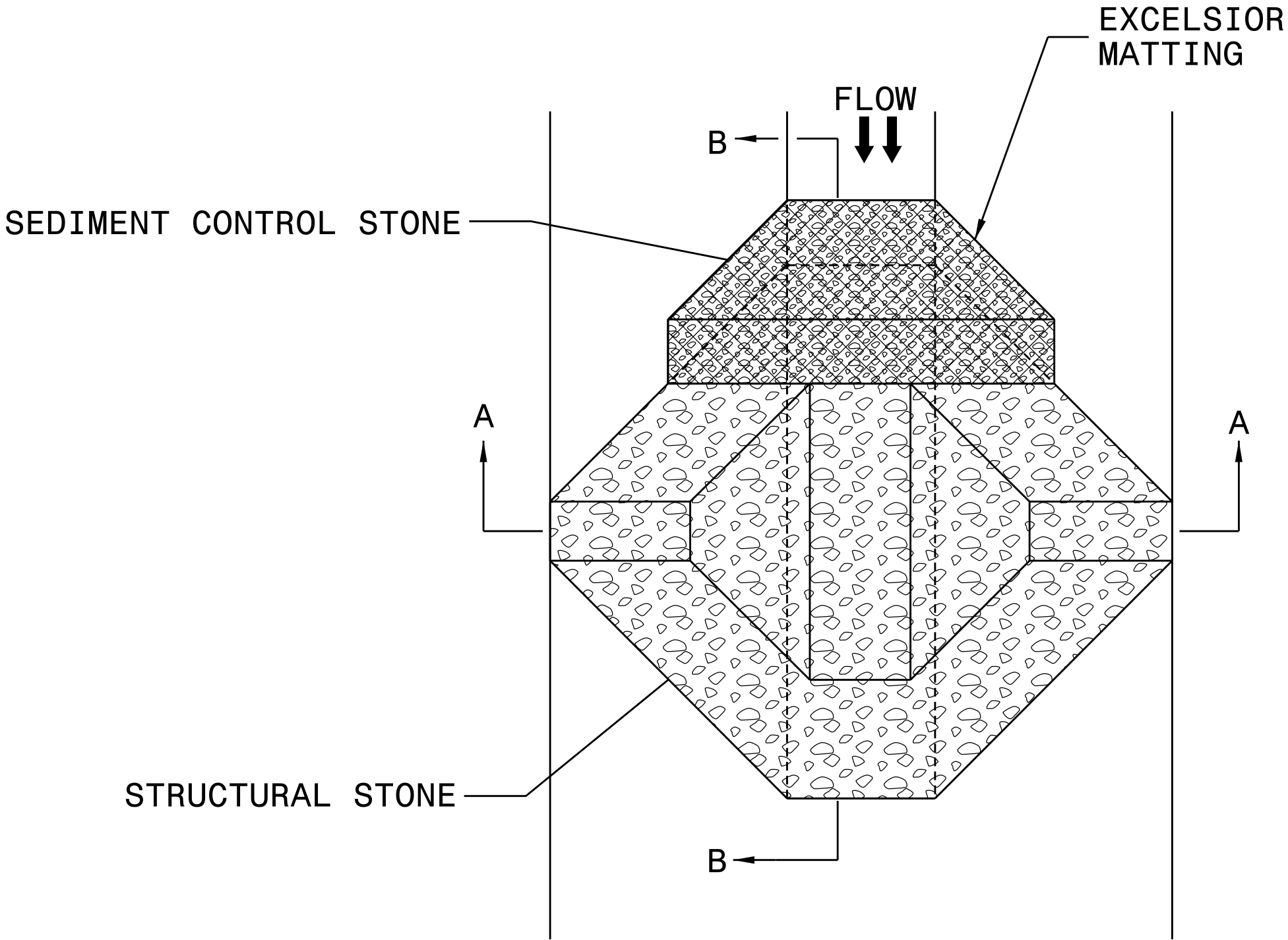
MATTING FOR EROSION CONTROL

[illegible]

MATTING FOR EROSION CONTROL

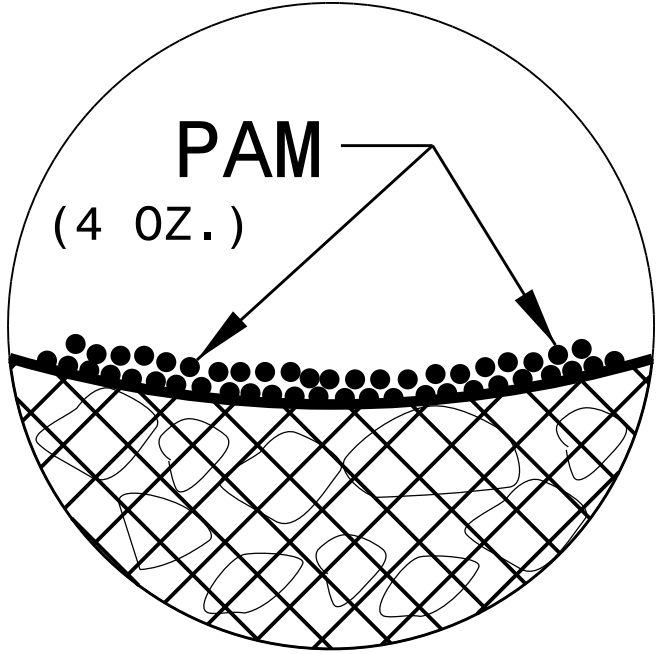
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TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM) DETAIL

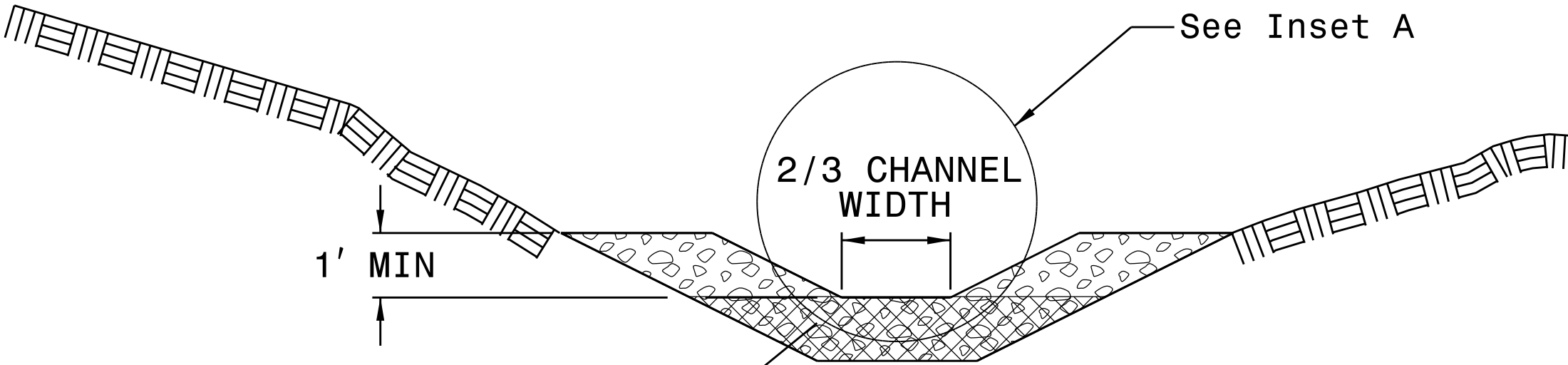


PLAN

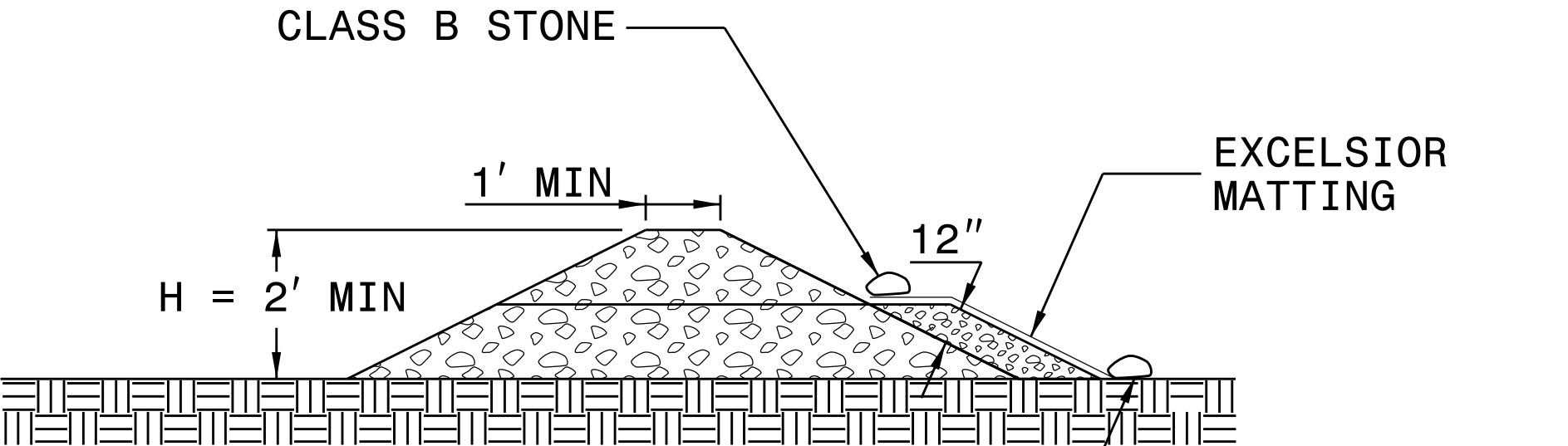
- NOTES:**
- INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.
- USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.
- INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



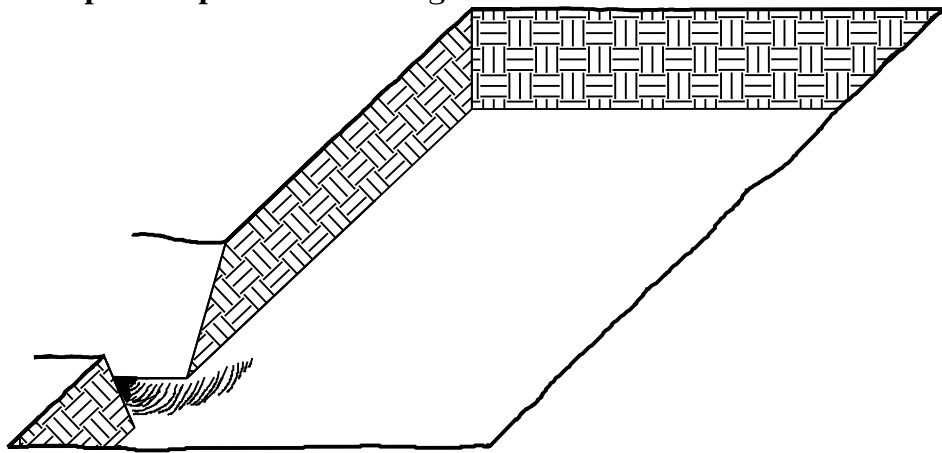
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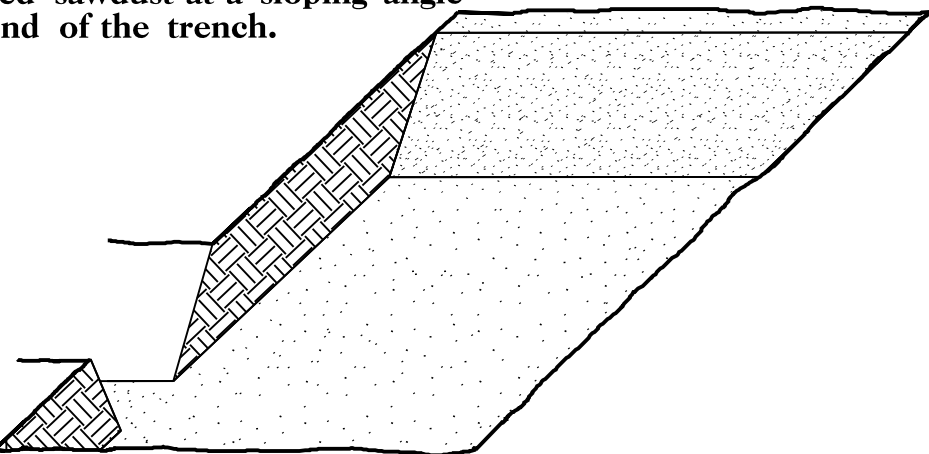
PLANTING DETAILS
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

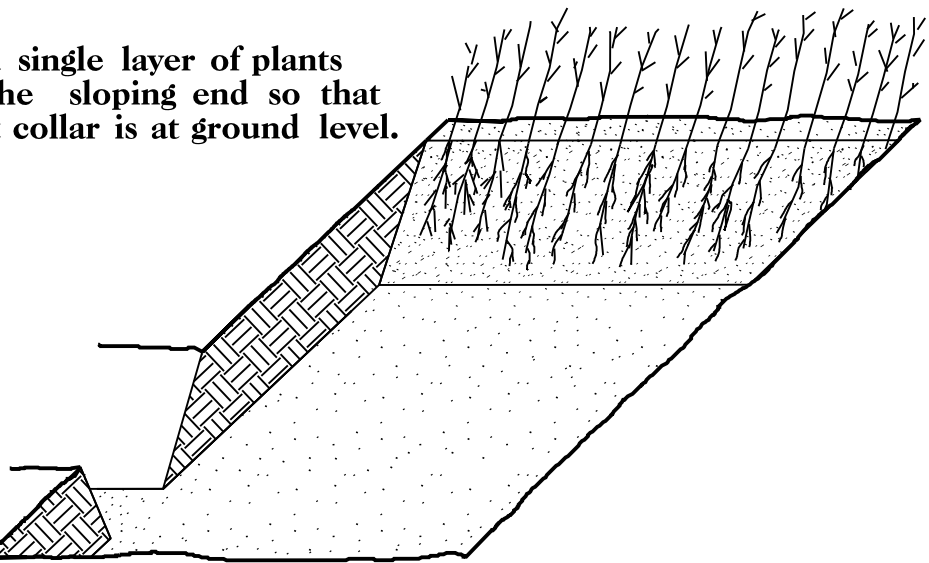
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



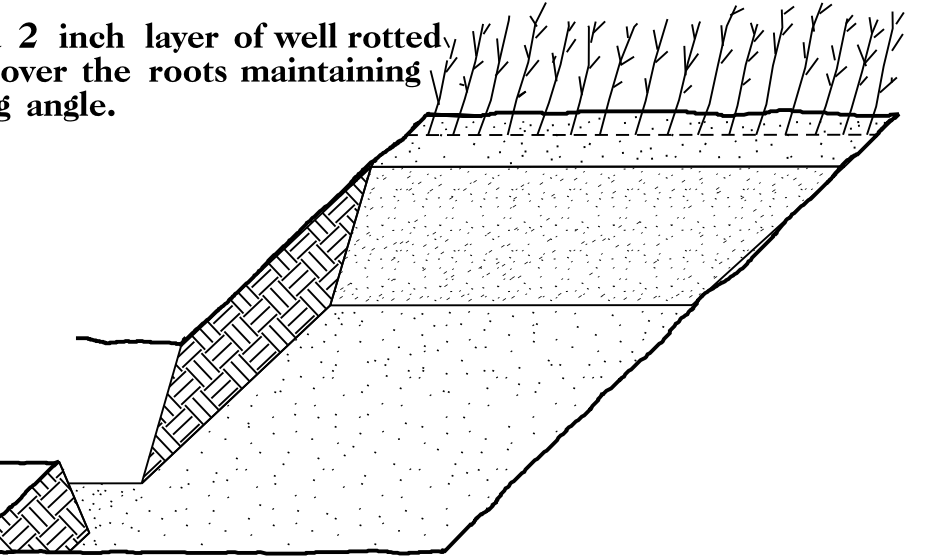
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

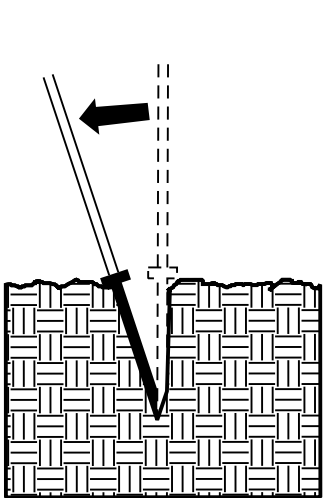


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

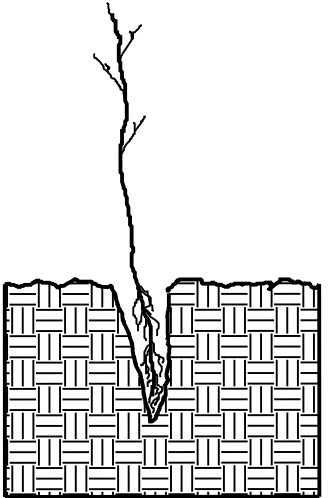


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

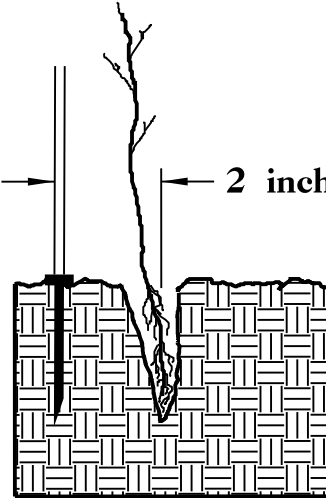
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



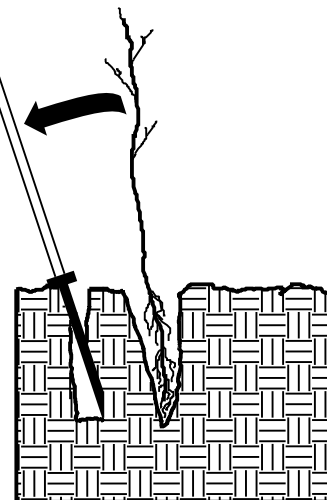
1. Insert planting bar as shown and pull handle toward planter.



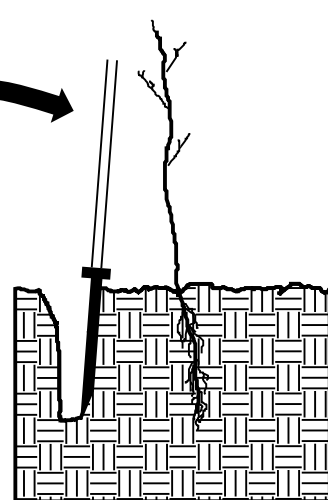
2. Remove planting bar and place seedling at correct depth.



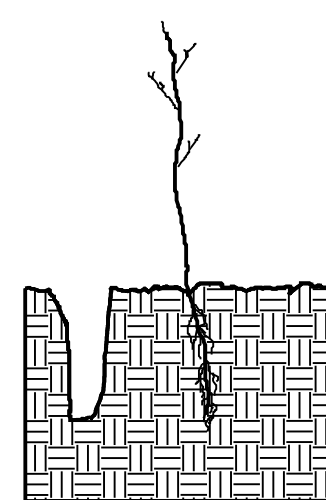
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



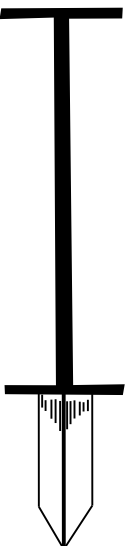
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

Reforestation:

Reforestation will be planted within interchanges and along the outside borders of the road, and in other areas as directed. Reforestation is not shown on the plan sheets.

All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire Reforestation operation shall comply with the requirements of Section 1670 of the Standard Specifications.

Reforestation shall be bare root seedlings 12"-18" tall.

Reforestation shall be planted as soon as practical following permanent Seeding and Mulching. The seedlings shall be planted in a 16-foot wide swath adjacent to mowing pattern line, or as directed.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: Reforestation shall be planted from November 15 through March 15.

Payment for Reforestation will be included in the contract bid price for Lump Sum for Erosion Control.

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT



LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY
PLANS

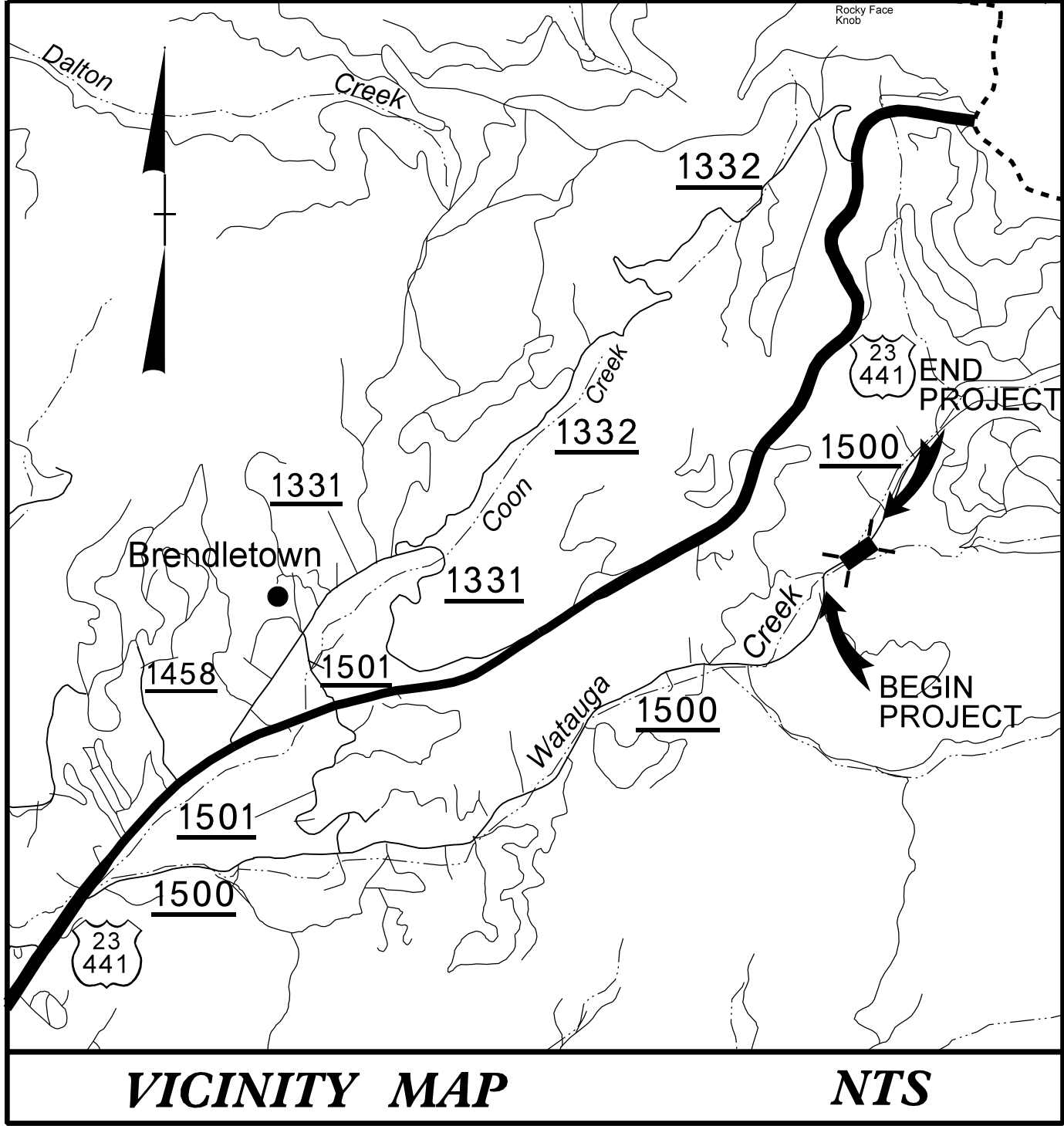
REVISIONS

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09.08/2019

TIP PROJECT: 17BP.14.R.48

CONTRACT: DN00268



VICINITY MAP

NTS

90% PLANS

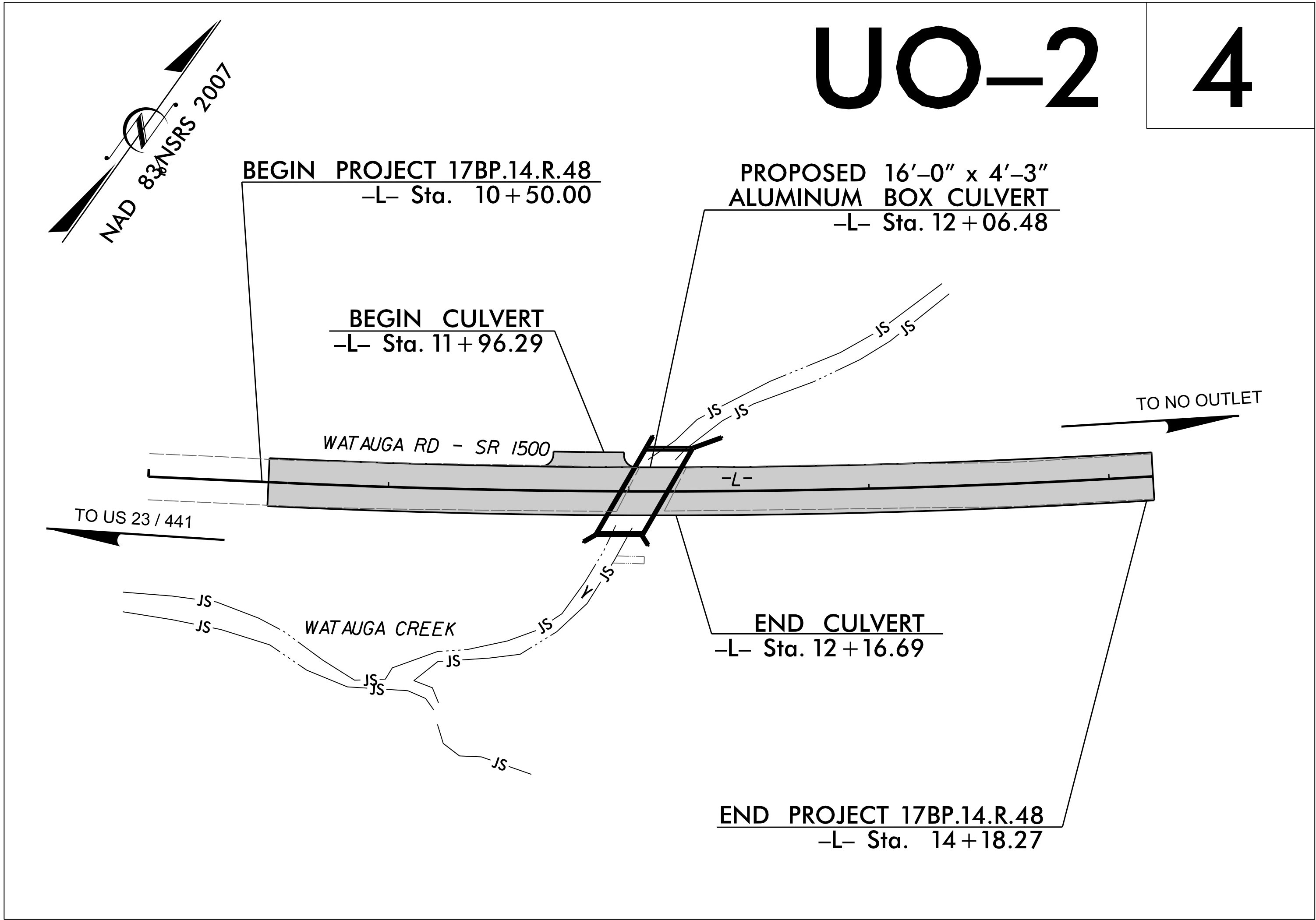
NCDOT CONTACT:
JOSH DEYTON, PE
HIGHWAY DIVISION 14
BRIDGE MANAGER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
MACON COUNTY

LOCATION: BRIDGE NO. 308 ON SR 1500 (WATAUGA RD) OVER WATAUGA CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE



UO-2 4

GRAPHIC SCALES



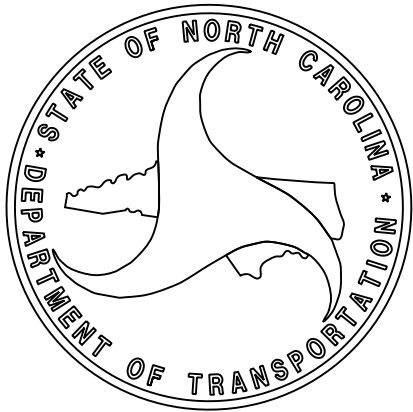
INDEX OF SHEETS

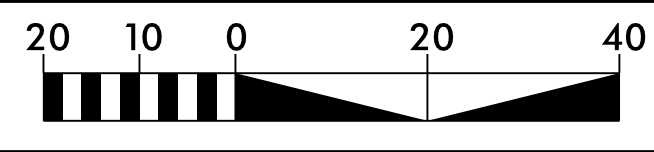
<u>SHEET NO.</u>	<u>DESCRIPTION</u>
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEET
UO-3	DETOUR PLAN (FOR REFERENCE)

UTILITY OWNERS ON PROJECT

- POWER - DUKE ENERGY
- TELEPHONE - FRONTIER COMMUNICATIONS

UTILITIES BY OTHER PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
6415 OLD PLANK RD., HIGH POINT, NC 27265
PHONE: (336) 886-4821 FAX: (336) 886-4458
WWW.DMP-INC.COM LICENSE: F-0245





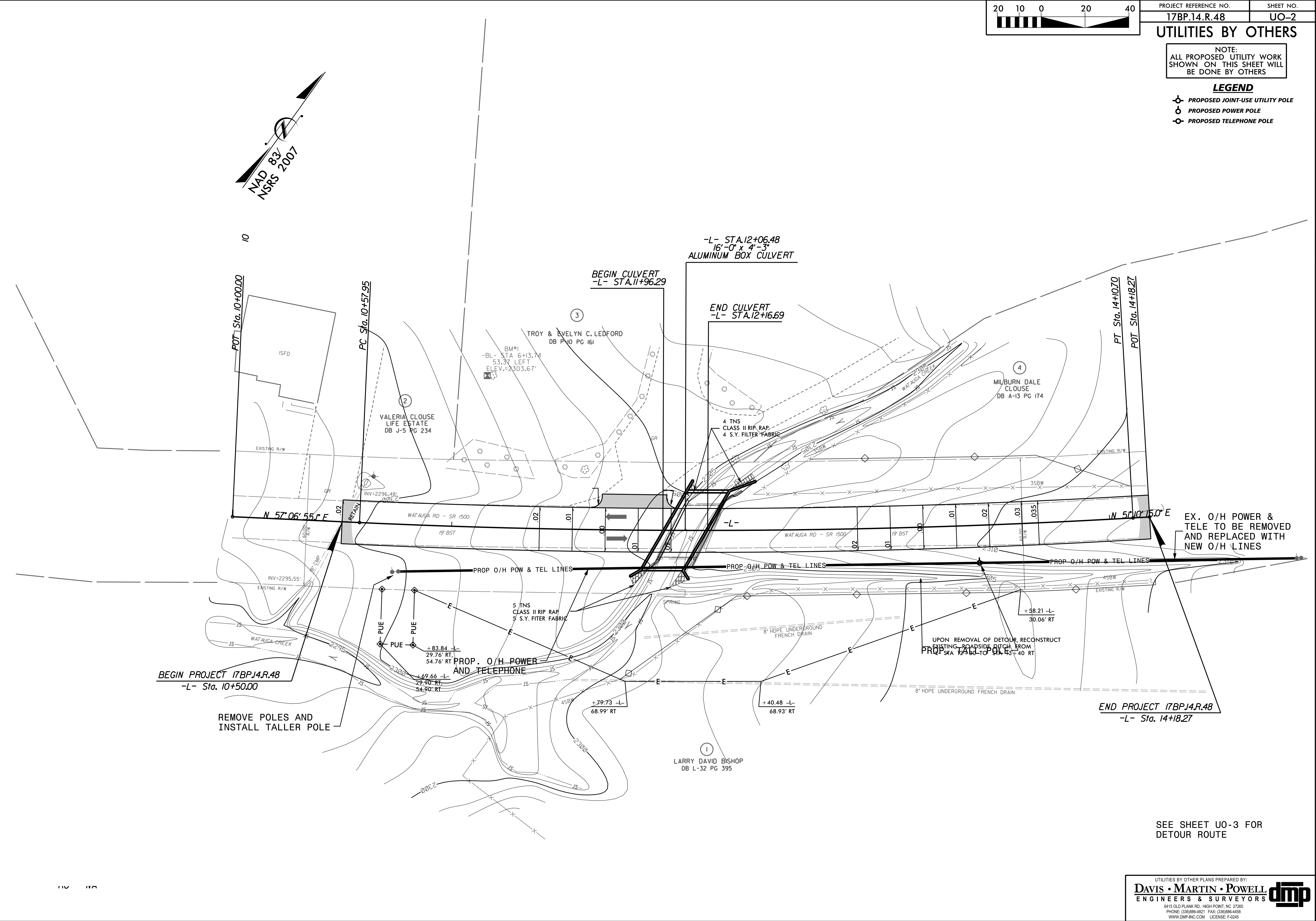
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	UO-2

UTILITIES BY OTHERS

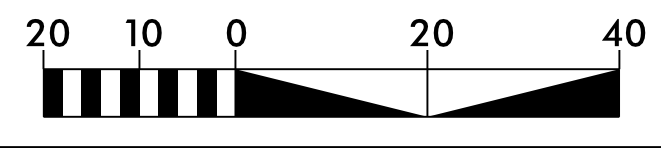
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

LEGEND

- PROPOSED JOINT-USE UTILITY POLE
- PROPOSED POWER POLE
- PROPOSED TELEPHONE POLE



SEE SHEET UO-3 FOR
DETOUR ROUTE



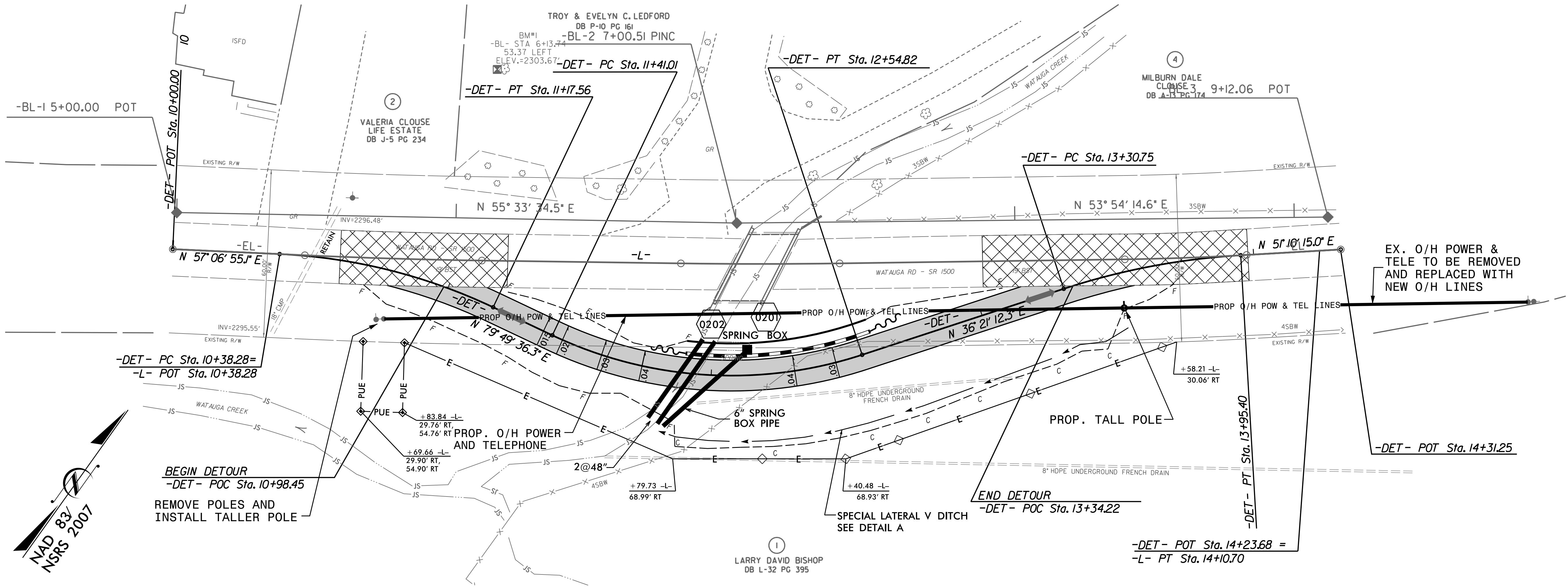
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	UO-3

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

LEGEND

- PROPOSED JOINT-USE UTILITY POLE
- PROPOSED POWER POLE
- PROPOSED TELEPHONE POLE



SEE SHEET UO-2 FOR
UTILITY MODIFICATIONS

